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ABSTRACT

An Ontario (Canada) provincial review of geography instruction was undertaken to: (1) determine student achievement levels and program effectiveness; (2) identify implementation strategies for a compulsory course, entitled "Canadian Studies Geography"; and (3) pilot test a new review model designed to analyze intended, implemented, and attained curriculum goals. The review examined courses of study and teachers' responses about their backgrounds, qualifications, and teaching methods. Information was provided by students detailing their attitudes about geography and geography instruction, and student achievement levels were measured. The population represented a cross-section of Ontario, and the study included courses in French and English. Specific information is provided about: (1) participation rates; (2) geography curricula; (3) teachers; (4) instruction; (5) resources; (6) teaching strategies; (7) evaluation techniques; and (8) time spent on specific skills' instruction. Information concerning the review's structure and 18 statistical or test-related appendices are included, along with 16 graphs, 6 charts, and 21 tables. (JHP)

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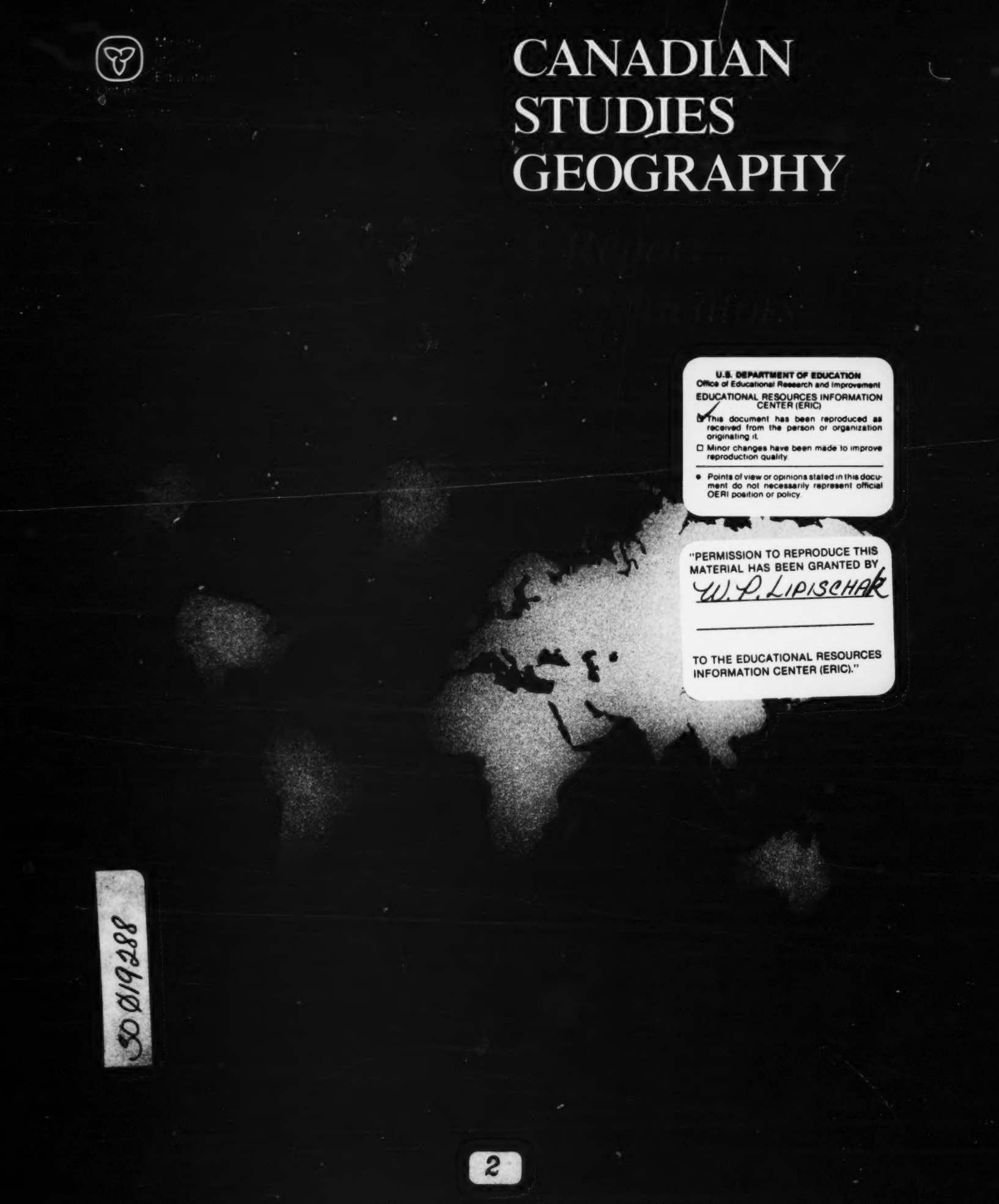

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CANADIAN STUDIES

GEOGRAPHY

A REPORT

FOR

EDUCATORS

PROVINCIAL REVIEWS

CANADIAN STUDIES GEOGRAPHY

CANADIAN STUDIES GEOGRAPHY - A REPORT FOR EDUCATORS

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CANADIAN STUDIES GEOGRAPHY

REVIEW

1. An Approach to Curriculum Change

Recent developments have led to a need for a review and clarification of areas related to curriculum policy, processes, and responsibilities. Some of these developments which have contributed to the implementation of provincial reviews include:

- the trend towards increased responsiveness and accountability in society
- economic and technological changes which have affected school programs and their delivery
- the need to relate the review process to curriculum development and implementation
- the variations in levels of implementation associated with new curriculum thrusts

The Ministry of Education shares responsibility for the quality of public education in the province with teachers, schools, and school boards. The Ministry of Education establishes the broad goals of education. The Ministry also publishes curriculum guidelines and circulars which specify major objectives and provide the basis for common learning activities and core content expectations.

The Ministry is responsible for the monitoring and reviewing of provincial curriculum policy. Yet, the primary responsibility for the planning of curriculum lies with principals and teachers working cooperatively with supervisory officers and other educators.

Curriculum review, development, and implementation are viewed as a cyclic process. The review phase involves the systematic gathering, analysis and interpretation of data concerned with the quality of school programs and student achievement.

The provincial review in Canadian Studies Geography was developed to focus on these two areas - the quality of the program and the level of student achievement.

2. INTRODUCTION

The provincial review of Canadian Studies Geography was a pilot of a review model which involved the description, comparison, and analysis of the intended, implemented and attained curriculum.

The review examined courses of study prepared at the board or school level, the responses of teachers of Canadian Studies Geography to a variety of questions about their background and qualifications, and about their teaching practices. Information was provided by students detailing their attitudes towards geography and geographic instruction; student achievement in Canadian Studies Geography was measured. Twenty-eight school boards with 140 schools, 399 teachers and 16 519 students participated. The population was a cross-section of the province and included courses offered in both French and English.

The provincial review in Canadian Studies Geography had three objectives:

- the determination of levels of student achievement and program effectiveness for the purpose of program improvement;
- the identification of implementation strategies for the compulsory course in Canadian Studies Geography contained in the new guideline;
- the pilot testing of a new provincial model.

2.1 FEATURES OF THE REVIEW

Information was obtained on the **intended curriculum** by a comparison of the objectives in the guideline and those found in the course of study for each school at both the general and advanced levels of instruction. Information was also obtained through questionnaires completed by teachers on their attitudes towards instruction of the geography course.

Information on the **implemented curriculum** was obtained from teachers regarding the coverage of the objectives outlined in the provincial guidelines, instructional practices, methods of evaluation and resources used in teaching and learning situations. Information was also collected on the teaching and evaluation of concepts, simple skills and complex skills.

Information on the **attained curriculum** was obtained by assessing student achievement on 120 questions from the Ontario Assessment Instrument Pool (OAIP). Through use of multiple matrix sampling each student answered 24 questions which assessed knowledge and skills based upon guideline objectives. Each student also answered two questions related to his/her attitude toward particular aspects of the Canadian Studies Geography course.

The data collected was scored and analyzed by the Ministry of Education. Additionally, a study of the student achievement results was made by a Provincial Interpretation Panel. The panel contained a cross-section of geography educators and several other individuals who brought expertise and advice from a non-subject point of view.

School and board results for each of the jurisdictions involved in the review process have been prepared and distributed. This report presents aggregated data from the all of the boards which participated in the review. A summary document, *CANADIAN STUDIES - GEOGRAPHY: A REPORT CARD FOR ONTARIO,* has also been prepared.

2.2 SETTING

Large school boards with as many as 28 schools and small school boards with only one secondary school participated in the review as did urban and rural, public and separate boards. Two private schools were also involved in the review. The review was conducted in both English and French. The schools, teachers and students involved in the review were a voluntary population and therefore did not represent a randomly selected sample of the provincial student population taking Canadian Studies Geography. The results then, that would have been obtained through a designed sampling frame, might have differed from those reported here. On the other hand, the wide breadth and diversity of the population studied in this review may be said to represent a reasonably accurate provincial picture of Canadian Studies Geography.

The compulsory course in Canadian Studies Geography is taken by most students in either grade nine or ten. For some students in junior high schools with grades 7 - 9, the course may be offered in the last year of the junior high school program. The choice of taking the course in grade 9 or 10 may be timetable decided in some schools or may be decided by the student.

At the time of this review the current guideline, **Intermediate Geography, 1977, Canadian Studies Geography** was part of a program which provided world coverage in four sections, usually over four grades. Grade seven (or grade eight) covered North America; grade eight (or grade seven) the Southern Continents - Africa, Australia and South America; secondary school courses dealt with Canada in one grade and Europe and Asia in the other grade. However, the course involving studies in Europe and Asia is an optional course taken by about 10% of the students in the province.

Most of the knowledge components and all of the skills components examined in the student assessment section of the provincial review will be found in the new guideline developed between 1984 and 1988 and to be released in 1988 and 1989. The findings of this review have applicability for the implementation processes related to the new guideline.

The student assessment part of the review did **not** cover all aspects of the geography program and did **not** examine in detail some of the emphases that teachers, schools and school boards have placed on the guideline through the development of courses at the local level. For example, some school boards may have developed courses based on group work activities; the effectiveness of these thrusts was not examined. Some school boards have spent much time on courses which have encouraged the development of higher order thinking skills; except through some of the student questions in the review, this aspect was not assessed.

2.3 THE NATURE OF THE REVIEW

The OAIP questions used in the student achievement section of the review were screened in late 1986 and it was determined that the instruments were not applicable to the basic level course. Consequently, only general and advanced level courses were reviewed.

The data collection phase of the review was carried out during the spring of 1987. In March, teachers filled out the Teacher Information and Teacher Attitude Forms, and provided information about the number of hours they spent on each of various areas of the geography course, resources, teaching methods, and evaluation techniques. The student achievement component and the collection of information regarding teacher coverage of the geography (opportunity-to-learn) occurred during a two-week period in late May and early June. The review was conducted only with teachers and students involved in the Canadian Studies Geography course either as a full-year course or in the second semester. Both semestered and non-semestered schools were able to complete the majority of the course prior to the actual administration of the student questions. In addition, assessment occurred in advance of formal final examination periods and did not seem to interfere with this process. For some students and teachers, the student achievement section served as an introduction to the review of the year's work prior to these examinations.

2.4 BOARD RESPONSIBILITIES

Each school board involved in the review appointed a board contact; a person who coordinated the local activities and provided training for participating teachers. Training of the board contact was done by the Education Officers from the Regional Offices or from the Program Implementation and Review Branch of the Ministry of Education. The board contact was responsible for teacher in-service sessions and assisted in the distribution and collection of teacher and student instruments.

Each school board is expected to report on the results of the review and to use the information for program planning and implementation of the knowledge and geographic skills components of the course in Canadian Studies Geography in the new guideline

2.5 CODING AND CONFIDENTIALITY

All of the forms filled out by teachers and students were coded to ensure that the return of all forms occurred while respecting the anonymity of the teachers involved. To ensure the return of all forms, one person at the system level kept a record of the codes assigned to each individual. The person who had access to the codes was **not** the board contact person but a local teachers' federation official, a department head chosen by his/her peers, the chairman of a local geography council, or an Education Officer from the Ministry Regional Office.

2.6 MODEL FOR THE REVIEW

The review involved collecting, analyzing and reporting information on the intended curriculum, the implemented curriculum and the attained curriculum.

2.6.1 The Intended Curriculum

A curriculum analysis, using courses of study collected from each school (or school board) for both general and advanced levels of instruction, established the educational context in which teaching and learning was taking place. The courses of study were analyzed by a team of teachers under the direction of the Program Implementation and Review Branch of the Ministry of Education. In addition, information was collected on the qualifications and experience of the teachers involved in the delivery of the course through completion of a **Teacher Information Form.** A **Teacher Attitude Survey** collected information on the attitudes of the teachers involved in the delivery of the course.

2.6.2 The Implemented Curriculum

Teachers supplied detail about their teaching methods, methods of student evaluation, instructional resources used in classroom activities, and time spent on specific content and skill areas through completion of an **Instructional Practices Form.**

A **Concept and Skill Instruction Form** was also filled out by teachers. This form dealt with the methods used to teach and evaluate simple skills, complex skills, and key concepts from the geography program.

A **Curriculum Coverage Form** which was used to establish students' opportunity-to-learn was completed by teachers at the same time as the students were involved in responding to the achievement questions. To obtain information about students' opportunity-to-learn, teachers were asked to indicate whether the skills and knowledge evaluated in the student achievement questions had been taught, reviewed, assumed taught in a previous course, or not taught. If the geography necessary to answer a question had not been taught by the classroom teacher, the reasons were identified.. The Curriculum Coverage Form also asked teachers to predict student achievement for each question - the percent of students who would respond correctly.

2.6.3 The Attained Curriculum

Finally, information on student achievement was obtained by having students answer questions designed to measure their understanding of the geography skills and knowledge components of the course in Canadian Studies Geography. Questions about student attitudes towards geography and the study of geography were also included.

One hundred and twenty questions representing ten content and skill areas of geography were distributed among five booklets. The booklets were rotated throughout the class. Each student completed one booklet of 24 knowledge and skill questions and two questions examining attitudes. Each student received the same number of questions on each of the content and skills areas. The 120 questions used in the Provincial Review in Canadian Studies Geography were taken from the more than 600 questions available in the Ontario Assessment Instrument Pool (OAIP).

2.7 RELIABILITY AND VALIDITY

When the questions were selected for inclusion in the student assessment section of the review, consideration was given to both reliability and validity. *Reliability* refers to the consistency of responses to these questions from day-to-day or, in the case of matrix sampling, the consistency of responses to a set of items by a sample of students within a school.

Validity refers to the degree to which the questions seem to be measuring what they are supposed to assess. A variety of methods can be used to determine both reliability and validity.

Reliability of the questions. The analysis from both the screening of these questions and the results of the review indicated that these items were indeed reliable. This was indicated by the fact that schools that did well on some questions in a content and skill area tended to do well on all of them. Similarly, schools that did poorly on questions from a content and skill areas tended to poorly on all of them. The scores obtained by schools and boards were reliable. Differences between schools and school boards were also reliable.

Validity of the items. Evaluation of the validity of questions always involves a degree of judgement on the parts of those using the questions. The individuals responsible for selecting the questions used ten general content and skill areas as guides for selecting questions from the OAIP. Some content and skill areas such as **Local Community** and **Statistics in Geography** were problematic. For example, how does one select questions to measure learning about the local community when a review assesses achievement across the entire Province? The solution was to identify questions that would measure knowledge generic to the study of all communities.

Some content and skill areas were assessed by only five questions each and the titles may suggest greater breadth of curriculum coverage than was necessarily the case (**Local Community, Statistics in Geography**).

It is for these reasons that educators have the responsibility to pursue the questions found in any assessment instrument and determine the curricular validity of the questions for their jurisdiction. It is also necessary to determine the relative weights given to a content and skill area when one evaluates the overall implications of the findings. This concept was explored and assistance provided for the school boards involved in the review process through *A Guide For Interpreting Board Results* which is included with this report as an appendix.

Further evidence of the validity of the questions in the assessment are found in the reports of teachers describing whether the geography necessary to answer the student assessment questions was taught, reviewed or assumed taught in prior courses or grades.

2.8 MULTIPLE MATRIX SAMPLING

To collect reliable data about student achievement on a large part of the curriculum, 120 questions were asked of students. To limit the amount of assessment time to less than one hour, multiple matrix sampling was used. One fifth of students answered one fifth of the questions. An additional one fifth of students answered another one fifth of the questions and so on.

Since the student achievement questions were equally divided into five booklets, each student would respond to one question relating to the Local Community, one question on the Extent and Location of Canada, four questions on Canada's Physical Geography, etc. Each student answered twenty-four questions related to the content and skill areas being reviewed (120 questions distributed throughout the 5 booklets). In addition, there were ten attitude related questions. These were divided equally among the five booklets; each student answered two questions related to attitudes towards geography and the study of geography.

The results from the matrix sampling provided reliable estimates of achievement as if all students had attempted all questions.

A complete list of the student achievement questions is found in Appendix 1. Many of the questions were related to visual materials - diagrams included with the questions, or topographic maps, thematic maps and aerial photographs which were provided for the students.

3. Results

3.1 PARTICIPATION RATES

Twenty-eight school boards, involving 140 schools, 399 teachers and 16 519 of the students taking the course were involved in the review. The boards participating in the review volunteered their involvement. The number of students involved represented approximately 12% of the provincial total of students taking the Canadian Studies Geography course.

Each board and school involved in the review has received its results which consist of a variety of data at the school and/or board level. No data is provided for individual students or teachers.

Each board is expected to report on the results of the review and to use the information for program planning and implementation of the knowledge and geographic skills components of the course in Canadian Studies Geography in the new guideline.

Table 1 - Participation Rates presents the number of eligible teachers and the number and percent of teachers providing data. The table also presents the number of students in general and advanced level courses who responded to the student assessment booklets. In the schools involved in the review, advanced level course enrollment was twice that of the general level. The return rate for instruments was over 90% for all teacher instruments. Only in the case of courses of study did a return rate fall below this figure. Schools were noticeably less likely to provide the course of study for the general level course.

3.2 THE INTENDED CURRICULUM

The intended curriculum is described in three parts. The first describes characteristics of the teachers of Canadian Studies Geography. The second describes the courses of study received from schools as part of the review. The final part indicates teachers' attitudes to the Canadian Studies Geography course.

3.2.1 The Teacher of Canadian Studies Geography

A profile of the typical teacher of Canadian Studies Geography was obtained from the **Teacher Information Forms.**

There are virtually no differences between the characteristics of teachers involved in instruction at the two different levels.

Teachers involved in Canadian Studies Geography tended to be male (88% in general level courses and 85% in advanced level courses) and most were specialists in geography (64%). Additional qualifications included advanced degrees in geography - M.A., M.Sc., or Ph.D. (7% of the teachers). Eight percent of teachers of the general level course and 9% of teachers of the advanced level course held additional degrees in education (M.Ed. or Ed.D). A slightly higher percent of teachers of general level courses had qualifications in Special Education (8%) compared to teachers of advanced level courses (6%).

Table 1
Participation Rates
For All Participating Boards

	Instrument	Number Eligible	Number Returned	Return Rate (%)
SC	Course Of Study (Gen)	140	112	80%
SC	Course Of Study (Adv)	140	130	93%
T	Teacher Information Form	409	399	98%
T	Teacher Attitude Survey	409	398	97%
T	Instructional Practices (Gen)	220	214	97%
T	Instructional Practices (Adv)	309	300	98%
T	Concept Instruction Survey	409	379	93%
T	Skill Instruction Survey	409	379	93%
T	Curriculum Coverage Form	409	381	93%
S	Student Assessment Response Form:			
	-General Level Course		5,327	
	-Advanced Level Course		11,192	

SC = School T = Teacher S = Student

Teachers were asked about involvement in formal geography professional development and in-service sessions during the year in which the review took place and the previous year; i.e. the period from September, 1985 to June, 1987. Approsimately 40% of the teachers had participated in a provincial level professional development or in-service session during this period. The corresponding figure for participation at the school level was 55%. At the board level, over 70% of all teachers had participated in such an activity. At this level, 62% of teachers had been involved in two or more professional development or in-service activities.

The following figures indicate the number of years of experience for the teachers involved in the review.

- Average years of teaching experience - 17;
- Years teaching geography - 13.5
- Average years teaching Canadian Studies Geography - 10.2.

On the other hand, some teachers were in their first year of teaching geography, the Canadian Studies Geography course, or were in their first year in the profession.

- First year of teaching - 5%
- First year teaching geography - 10%
- First year teaching Canadian Studies Geography - 13.5%

3.2.2 Courses of Study

Courses of study were collected from schools and examined by a team of geography teachers. The team established a five-point scale involving a number of criteria which allowed for the wide variability in the organization of the courses submitted. The team rated a number of courses of study as a group in order to validate the criteria and to test for consistency in rating. Every 25th course was also checked by all team members.

The results of the course of study ratings are found in **Table 2 - Course of Study Ratings.** At the top of the table are the number of courses of study examined by the evaluation team, as well as the percent of the schools in each of the five categories. In this chart, and in others, small rounding errors may occur. For example, in the chart for Advanced Level Courses, the percents, when totalled, add up to only 99.

The rating scale was from (1) to (5). At the lower end (1), courses of study were not received. At level (2), there was minimal description of the course and for the remaining three levels, ratings were based on higher quality in areas such as planning, rationale, specificity of objectives, resources and evaluation, and the inclusion of sub-topics, skills and concepts by unit.

At the highest level (5), courses were expected to show superior evidence of planning, a rationale and/or specific objectives for units, a description of sub-topics, and/or skills and concepts; in addition, courses at the highest level contained samples of teaching strategies, evaluation techniques, and contained lists of resources or indicated unit timing.

Table 2
Course Of Study Ratings
All Participating Boards

Rating Categories

1

-no Course of Study received

2

-topic/skill named only
-no description provided
-may have brief statement on resources or evaluation

3

-guideline rationale or objectives named
-topic/skill described by sub-topics, skills or concepts
-may have statements on evaluation or resources

4

-units may have rationale/objectives
-unit includes sub-topics, skills and concepts
-course statements exist on evaluation and resources

5

-all units have rationale/objectives
-each unit includes sub-topics, skills, concepts and teaching strategies
-each unit describes resources and evaluation techniques

General Level Course Of Study
Number Of Schools = 140

Rating	Percent Of Schools
1. No Course of Study Received	20
2. Minimal Description	16
3. Adequate Description	27
4. Considerable Description	29
5. Extensive Description	9

Advanced Level Course Of Study
Number Of Schools = 140

Rating	Percent Of Schools
1. No Course of Study Received	6
2. Minimal Description	17
3. Adequate Description	20
4. Considerable Description	51
5. Extensive Description	5

The team which rated the courses of study found several content and skill areas which they felt were particularly well planned and which related well to the objectives in the guideline. These included the **Extent and Location of Canada** (B), **Canada's Physical Geography** (C), **Distribution of Population in Canada** (E), **Constructing and Interpreting Charts, Graphs and Thematic Maps** (I), and **Topographic Maps and Air Photographs** (H),

Although **Local Community** (A) and **Energy Supply** (G) were the most often not included in the courses of study, the levels of planning were very detailed when they did appear.

The sections and instructional objectives related to **Canada's Renewable and Non-renewable Resources** (D), **Effects of Industrialization and Technological Change on Transportation and Canadian Society** (F), and **Using Statistics in Geography** (J) were generally not as well planned.

The team noticed a trend in the planning of the section on **renewable and non-renewable resources** in many courses of study; the planning showed a tendency to lose sight of the intended objectives in the guideline. For example, although there were high to superior levels of planning for specific topics such as agriculture, forestry, fishing, or mining, these topics were planned as separate entities with little or no focus on the concepts of renewable or non-renewable resources.

In the area of **statistics,** there was little indication of planning for "making simple calculations of percents, averages and densities" as outlined in the guideline.

The team of validators did notice some very positive aspects of the intended curriculum. These included:

- the distinct nature of the courses of study for the two levels of difficulty, general and advanced;
- the integration of the skills objectives in the planning for knowledge objectives rather than as separate units;
- the frequency in which "the effect of occupancy of native peoples" was included in the planning documents.

One common difference between general and advanced level courses of study was the omission of specific objectives found in the guideline in courses of study developed for the general level. This was particularly true of the objectives associated with the skills used with topographic maps and air photographs. The omission of this topic from the course of study was often the most significant element in reducing the rating associated with the general level course of study.

An analysis of the distributions found in **Table 2** found that the differences between ratings of general and advanced level courses of study could not be attributed to chance alone (these differences would occur by chance less than one in a thousand times). There was a significant tendency for general level courses of study not to be available for analysis, and when available, to be less developed and detailed than those provided for the advanced level course.

3.2.3 Teacher Attitudes to Geography Instruction

Teachers responded to ten questions about their attitudes towards the instruction of geography, particularly the compulsory course in Canadian Studies Geography. Table 3 presents the questions and the percent of teachers providing each response option.

Virtually all teachers felt it was important to teach environmental issues in a geography course, to provide balance in the teaching of the content and skills, to teach a pride in the country, to teach problem solving skills, and to enhance students' feeling of self-worth. Divergence of opinion was apparent from the responses to the questions concerned with using computers, teaching air photograph interpretation, and making students aware of career opportunities associated with geography.

All tables which extend over more than one page are "excerpted" in the text and provided in full in the appendices. For example, Table 3 is found in full as Appendix 2.

Table 3
Teacher Attitudes to Geography Instruction
All Participating Boards

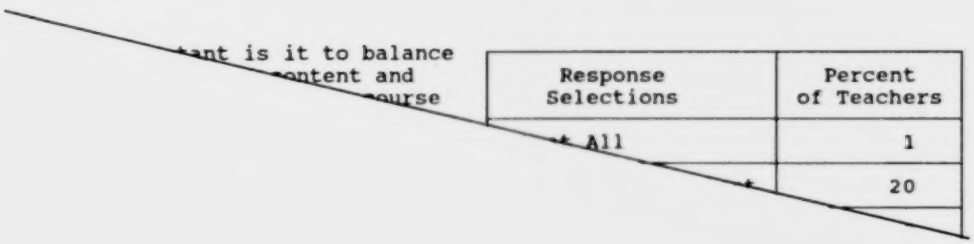
Number of Teachers = 389

1. How important is it to teach environmental issues in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	0
Moderately Important	28
Very Important	72

2. How important it is for students to use computers in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	26
Moderately Important	56
Very Important	18



...tant is it to balance
...ontent and
...ourse

Response Selections	Percent of Teachers
...t All	1
...	20

3.3 The Implemented Curriculum

The implemented curriculum was examined through of a variety of measures. These included reports by teachers of student opportunity-to-learn, approaches used in teaching concepts and skills, hours spent on instruction, and use of instructional resources, instructional strategies, and evaluation techniques.

3.3.1 Opportunity-to-Learn

Teachers indicated, for each of the 120 questions in the student assessment booklets, whether the questions represented geography that had been taught (covered) in the current year to students in their general and/or advanced level courses. In addition, teachers predicted the percent of their students who would answer correctly each question. Teachers who taught both general and advanced level courses provided two sets of responses.

Teachers indicated whether the geography was taught as new material to students or reviewed. If teachers did not select either of these options, they indicated reasons for not teaching the content or skill. These reasons included an assumption that the content or skill was taught in a prior course. In addition, teachers could indicate that the geography required to answer the question was not taught because it was not in the course of study, there was a lack of resources, the material was inappropriate, there was a lack of time, or other (non-specified) reasons.

Graph 1 presents results for the general level and advanced level courses; the graph has three parts, consisting of the average covered for all the content and skill areas together, and for the content areas and for the skill areas separately. The graphs indicate the percent of questions indicated as taught, reviewed, or assumed taught prior to the course.

The geography required for the content or skill contained in about three of four questions was reported covered by teachers of advanced level courses; similarly, the geography required for about two of three questions was covered by teachers of general level courses. These proportions were consistent for the 70 content questions and for the 50 skill questions. Since the guideline - Intermediate Division Geography did not specify levels of difficulty, content choices were left up to the curriculum developer at the local level. These choices were often made by the classroom teacher.

Opportunity-to-learn by content and skill areas. Some content and skill areas were more likely to be covered than others. The ten bars in **Graphs 2 and 3** represent the seven content and three skill areas:

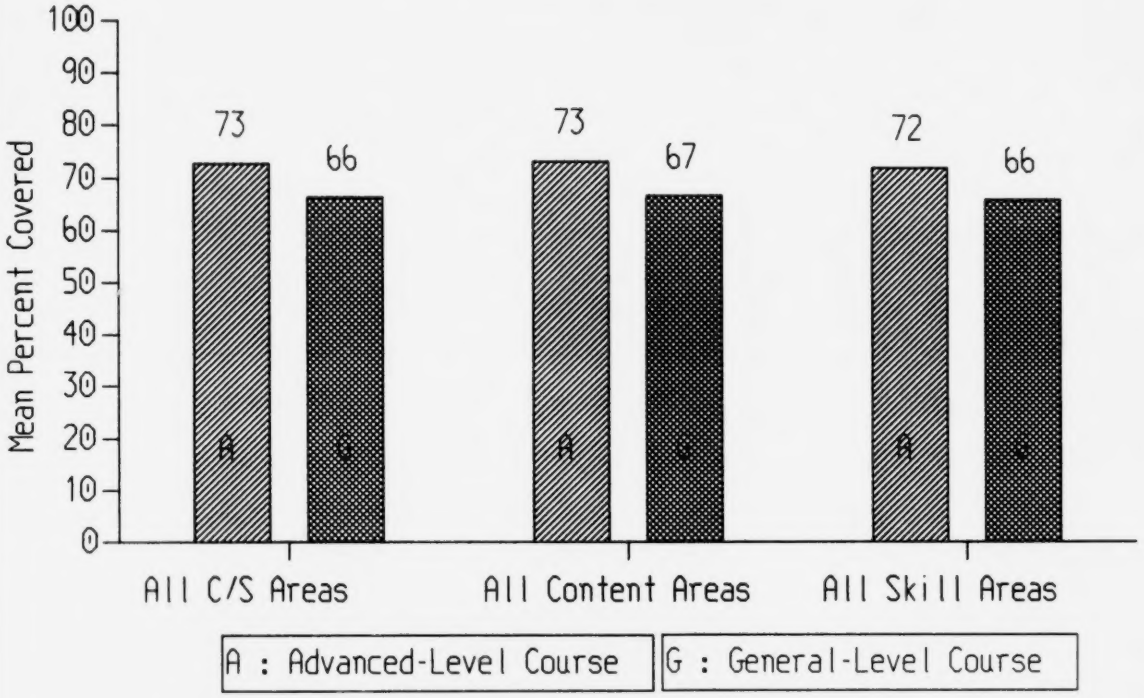
CONTENT AREAS

(A) Local Community
(B) Extent and Location of Canada
(C) Canada's Physical Geography
(D) Canada's Renewable and Non-renewable Resources
(E) Distribution of Population in Canada
(F) Effects of Industrialization and Technological Change on Transportation and Canadian Society
(G) Energy Supply in Canada

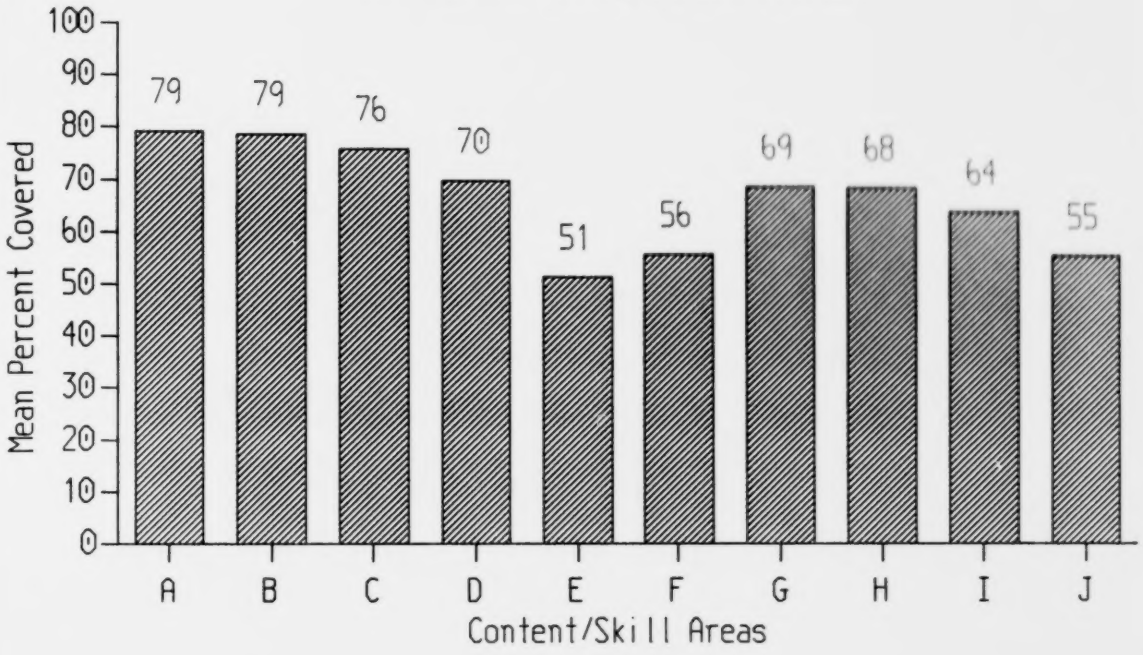
SKILL AREAS

(H) Topographic Maps and Air Photographs
(I) Constructing and Interpreting Charts, Graphs and Thematic Maps
(J) Using Statistics in Geography

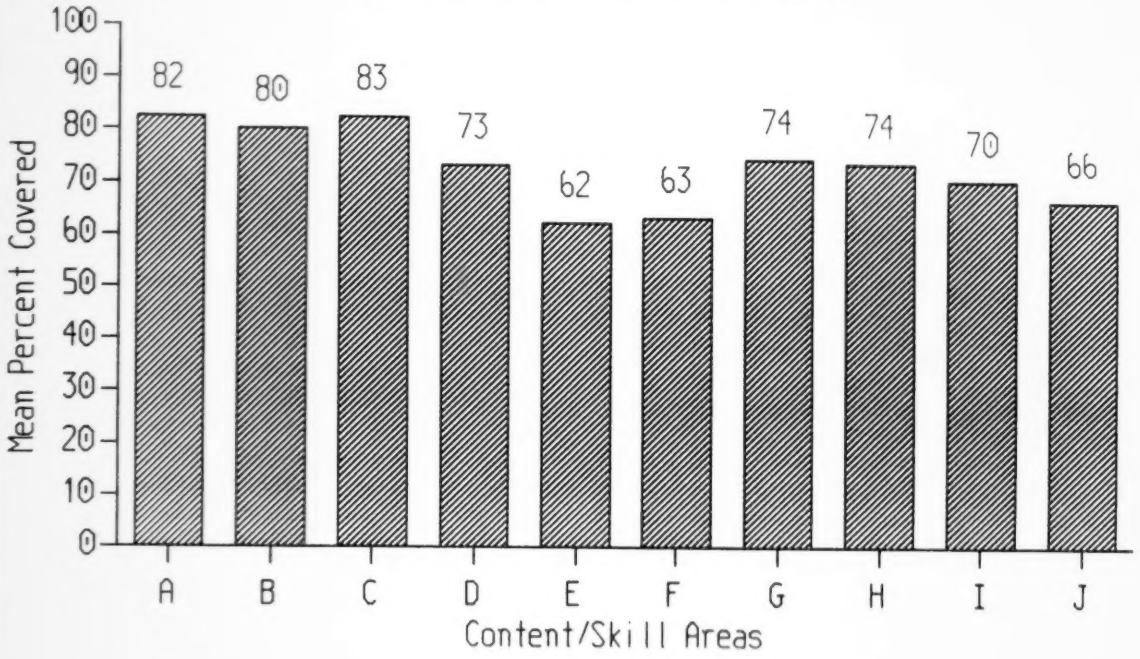
Graph 1
Overview Of Opportunity-To-Learn
All Participating School Boards



Graph 2
Opportunity-To-Learn By Content And Skill Areas
General - Level Course
All Participating School Boards



Graph 3
Opportunity-To-Learn By Content And Skill Areas
Advanced - Level Course
All Participating School Boards



As shown in Graphs 2 and 3, on pages 15 and 16, the questions concerned with **Local Community** (A), **Extent and Location of Canada** (B), and **Canada's Physical Geography** (C) were most covered by teachers of general and advanced level courses.

The areas least covered were, for both levels of courses, the questions on **Distribution of Population in Canada** (E), **Effects of Industrialization and Technological Change on Transportation and Canadian Society** (F), and **Using Statistics in Geography** (J). For these latter areas, average coverage was about 55% for the general level course and about 64% for the advanced level course.

These three graphs provide average coverage for the ten content and skill areas. A more detailed breakdown of teacher reports of coverage (and the reasons for not covering the questions) is provided in **Tables 4 and 5 - Analysis of Opportunity-to-Learn.** For convenience, the questions have been grouped into their content or skill areas. These tables contain teacher responses to the coverage of the 120 questions in the student assessment section of the review for both the general and advanced levels respectively.

The top sections of Tables 4 and 5 are presented on page 18. The complete tables are found in Appendix 3 and Appendix 4.

As shown in Table 4, an overwhelming majority of teachers of the general level course (88%) reported covering or reviewing question 1, which was concerned with Local Community. Four percent of teachers assumed it had been taught in a previous course, three percent did not feel it was in the course, one percent indicated that resources were not available, the same amount felt that the content was inappropriate, two percent did not have the time, and three percent did not cover it for other (non-specified reasons). Of note was the finding that among the questions presented here in Table 4, only in the case of question 6, concerned with Canada's Physical Geography, did more than 10% of teachers indicate that the content was not in the course. Teachers' responses to all 120 questions, found in the Appendices 4 and 5, will provide information concerning reasons given for non-coverage of each question.

The content areas **Local Community** (A) and **Extent and Location of Canada** (B) were highest in terms of opportunity-to-learn; 80% of the teachers indicated that they had taught, reviewed or assumed taught in a previous course, the geography necessary to answer these questions in the student assessment booklets. The figures did not vary significantly when general and advanced level responses were compared. Question 1 dealing with distance between cities had a response of 92% in these three categories. Similarly, question 53 (depicting relief on maps) was taught, reviewed or assumed taught by 91% of all teachers.

An examination of Tables 4 and 5 will indicate that in the three response categories, A, B, C, *(taught, reviewed, assumed taught in a previous course),* 11 questions at the general level and 28 questions at the advanced level received teacher responses which totalled over 90%.

In the content area, (B) **Extent and Location of Canada,** the percents for "reviewed" (taught, but not as new material) were the highest of the ten content and skill areas. At the general level of instruction, 17% of the teachers reviewed the content; the corresponding figure at the advanced level was 13%. The geography for item 2 (boundary features) was reviewed by one quarter of all teachers of general level classes; the pattern was similar in advanced level classes where the geography was not taught as new material, but reviewed by 23% of teachers. These figures indicate that some of the geography teachers expected that this material had already been covered in previous courses or grades.

Table 4
Analysis of Opportunity to Learn
General level Course
All Participating Boards

Description of Response Categories

A = Taught-new
B = Taught-reviewed
C = Not taught - previous course
D = Not taught - not in course
E = Not taught - no resources
F = Not taught - inappropriate
G = Not taught - no time available
H = Not taught - other reasons

Number of Teachers of General Level Course = 197

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
A. Local Community	1	67	21	4	3	1	1	2	3
	27	62	10	3	9	3	2	8	5
	53	80	9	2	5	1	1	2	2
		75	8	1	6	1	2	5	4
					8	0	7	2	7

Table 5
Analysis of Opportunity to Learn
Advanced Level Course
All Participating Boards

Description of Response Categories

A = Taught-new
B = Taught-reviewed
C = Not taught - previous course
D = Not taught - not in course
E = Not taught - no resources
F = Not taught - inappropriate
G = Not taught - no time available
H = Not taught - other reasons

Number of Teachers of Advanced Level Course = 273

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
A. Local Community	1	66	17	6	4	0	0	4	3
	27	68	8	2	4	3	0	9	6
	53	87	5	0	1	0	0	4	3
	79	80	7	1	2	1	0	5	4
	105	82	5	1	2	0	0	4	6

The three areas of lowest coverage illustrated on graphs two and three are (E), (F) and (J) for both general and advanced levels. There was low coverage of the complex objective dealing with the Effects of Industrialization and Technological Change on Transportation and Canadian Society and the skills area of Statistics in Geography, especially at the general level of instruction. . These are difficult either in terms of concept development or in terms of the amount of background knowledge required by the students in order to master the objective. There was low coverage of the content area related to the Distribution of Population in Canada. For both levels of instruction, this was the highest content and skill area to be identified by teachers as "not taught - no time available"; for the general level course, the average for this category was 15.5%; the corresponding figure for advanced level was 12.6% At the general level of instruction, question 95 (steel production) was designated as not taught because of lack of time by almost 30% of teachers and 23% of teachers at the advanced level of instruction.

There was a wide range of responses within content and skill areas for the category "not taught - not in course". Only two areas received consistently high responses in this category - areas (E), **Distribution of Population in Canada,** and (J), **Using Statistics in Geography.** At the general level of difficulty, an average of 13.3% of the questions were classified as not taught because they were not in the course. The corresponding figure for the advanced level was just over 10%.

Except for these two areas, no content or skill area received the "not taught - not in course" response consistently from teachers; however, within content and skill areas, specific questions often were identified as ones in which the geography related to the question had not been taught. Examples include questions 23, (reading population graphs), 46 (reading circle graphs related to ports) and 49 (interpreting line graphs) in the student assessment booklets.**(see Appendix 1 for a listing of all of the student achievement questions)**

The lack of resources does not appear to be a general problem. Only in two cases did 10% of the teachers indicate that lack of resources was the reason for not teaching the geography related to a specific question. Both of these were for the general level and dealt with aerial photographs - questions 10 and 62.

Variation in coverage among schools in the review. Mean scores sometimes obscure degrees of variation. Such variation might be found among a group of teachers or among schools in coverage of course content. A useful method to examine the range of responses, or in this case, content and skill area coverage is through use of "box and whiskers" charts.

The variation in content and skill area coverage among schools is illustrated in Charts 1 and 2. Chart 1 shows the variation among schools for the general level course; Chart 2 provides the same information for the advanced level course.

For each content and skill area a box shows the middle 50% of average school reports of content and skill coverage. For example in the general level course, (Chart 1) content area (C): **Canada's Physical Geography,** 50% of schools reported covering between 33% and 73% of the 20 questions concerned with Canada's Physical Geography.

The line drawn in the box indicates the mid-score or median (53%). Half of schools in the review reported covering more than 53% of the questions, half less.

The lines extending upward and downward from the box indicate the range of scores for an additional 40% of schools; 20% above and 20% below the middle 50% of schools. Schools that were outside these levels of coverage (the top 5% and bottom 5%), reported covering either greater than 89% or less than 13% of the geography to answer the questions in this particular content area.

Chart 1
Variation in Average School Opportunity to Learn by Content/Skill Areas (General Level Course) All Participating Boards

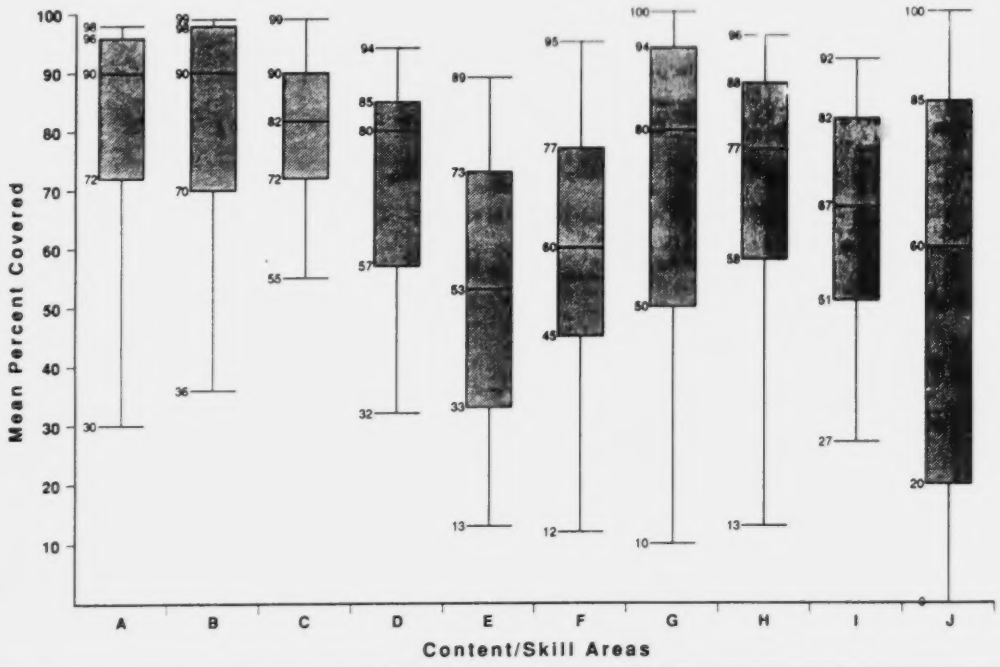
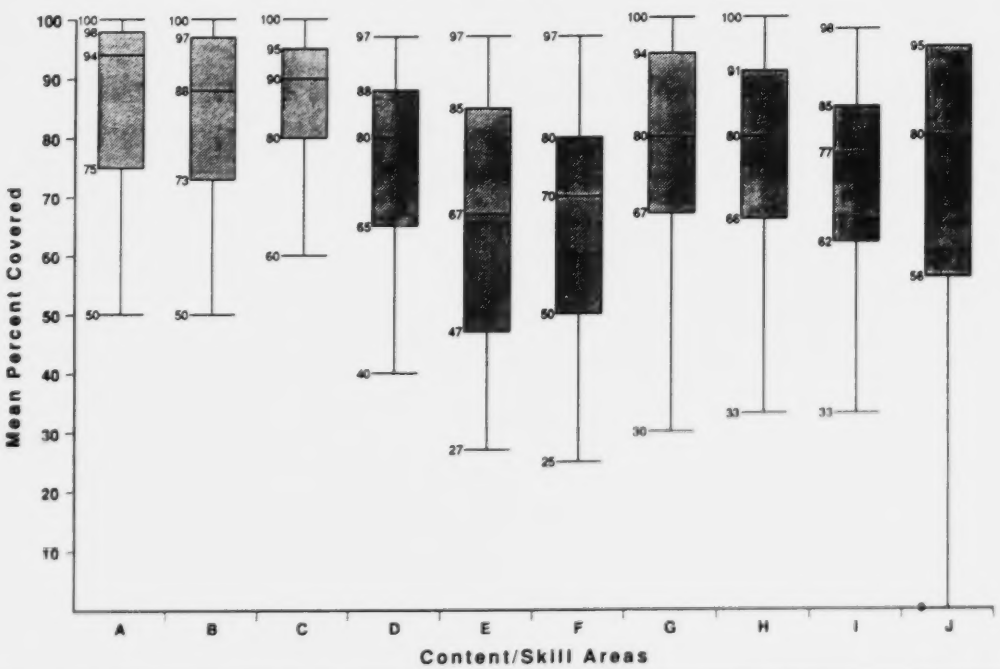


Chart 2
Variation In Average School Opportunity to Learn by Content/Skill Areas (Advanced Level Course) All Participating Boards



If school results reported coverage for 66% of these questions, it fell within the mid 50% of participating schools. If a school reported coverage of 22% of the questions it was in the bottom quarter of all schools in the review in coverage in this area.

3.3.2 Concept and Skill Instruction

As part of the data collection for assessing the implemented curriculum, teachers were asked to provide information about the teaching of specific concepts, and either simple or complex skills.

Information was asked regarding one of three concepts found in the Canadian Studies Geography guideline - resources, urbanization, and industrialization. Teachers were asked to describe the steps they followed in teaching the concept, provide a test question they might use to assess the effect of instruction on the concept, and to indicate the key points they would expect to find in a good student answer.

Teachers were asked to provide information about the teaching of simple or complex skills following the same format as that provided for concept instruction. If teachers received a form asking for information on simple skills, they had a choice between geographical skills such as locating a point on a map using co-ordinates and drawing a profile using a topographic map.

The teaching of complex skills was also examined. Teachers were asked to choose between "decision-making" or "determining the relationship between two variables or factors". A similar response format was used.

A team rated the input provided by teachers. The results of their examination indicated a wide variety of levels related to the teaching of concept development in the province. Many teachers did not separate the concepts of "urban" from "urbanization". There was a tendency to gravitate toward selecting the clearly stated concept (eg. urban) because of apparent confidence in dealing with the outcome of the process rather than the process itself.

Great differences occurred between the responses associated with teaching simple skills compared to those relating to complex skills. Generally, teachers seem to have a sound grasp of simple - and geographical - skills and their associated methods of instruction; on the other hand, more complex skills and those associated with interdisciplinary skills were less easily articulated by teachers. These findings will be of some importance since the new guideline in Geography stresses the teaching of interdisciplinary skills.

No statistical data has been provided for the concept and skill development section. The team involved in the rating procedure had some discomfort in the scoring decisions related to the placement of teacher responses on a growth scheme.

3.3.3 Instructional Resources

Teachers were asked to indicate their use of instructional resources in the classroom. The resources were grouped into sets with common characteristics. For example, film, slides and filmstrips were combined into one resource set, as were library books, journals and magazines.

Teachers rated their use of these resources for each of the content and skill areas on a scale of (1) - (5), with (1) representing "not used at all" and (5) representing "almost always used". The resource sets are listed in Table 6.

This information collected about resource use is presented in a variety of ways. **Table 6 - Teacher Use of Instructional Resources** presents the percent of teachers of the general level and advanced level courses falling in

various categories of use. Teachers' responses were averaged across the ten content and skill areas and scores for each teacher were placed one of five categories. A teacher who reported extensive use of a resource across almost all areas would have received an average score of about 4.5 - 5.0 and would be identified in the extensive use category. A teacher reporting extensive use of a resource for five areas but little use in the other five might receive an overall rating of moderate use (3).

For example, as shown in Table 6, about half of the teachers reported that they sometimes use set one - films, slides and filmstrips. Eight percent of teachers of general level courses reported not using these resources at all; the corresponding figure was seven percent for teachers of advanced level courses. On the other hand about 18% of teachers of advanced courses and 16% of teachers of the general level course reported that they often use these materials.

Table 6
Teacher Use of Instructional Resources
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Number of Teachers =	207	287
Set One		
-Films -Slides -Filmstrips		
Not Used At All	8	7
Rarely Used	27	30
Sometimes Used	46	47
Often Used	18	16
Almost Always Used	1	1
Set Two		
-Overhead Projector -Board		
Not Used At All	8	4
Rarely Used	6	9
Sometimes Used	21	19
[illegible]	38	35
[illegible]	27	33

Similar variations in practice among teachers appear in the subsequent parts of this and other tables. Differences among all teachers were more significant than between teachers of the general and advanced level courses.

Graph 4 - Emphasis on Instructional Resources shows the average use of each resource by teachers for the two levels of instruction illustrating the relative emphases placed upon the resources in the teaching of Canadian Studies Geography.

The legend for this graph is as follows:

(1) films, slides, filmstrips;
(2) overhead, projector, blackboard;
(3) television, VCR, videotapes, TVO series;
(4) computer, printer, software programs;
(5) standard atlas, economic atlas, thematic atlas;
(6) student texts, supplementary texts;
(7) library books, journals, magazines;
(8) globes, wall maps, thematic maps, models, stream table;
(9) topographic map sheets, air photos, topo/air photo atlas;
(10) guest speakers, field interviews, field trips.

As might be predicted with a high level of use of teacher directed classroom instructional strategies (see **Graph 5 - Emphasis on Instructional Strategies**), the use of the overhead projector and blackboard rank highest in terms of instructional resource use. Atlases and textbooks also ranked high in use.

The lowest rated resource set was computers. Approximately 80% of the geography teachers in the Canadian Studies Geography course do not use computers as an instructional resource (84% for general level and 78% for advanced level).

Another resource set which received low ratings was the use of guest speakers, field interviews and field trips. Approximately 60% (64% for general level and 57% for advanced level) of teachers reported no use of these three resources.

Table 7 - Mean Use of Instructional Resources by Content and Skill Areas provides a detailed breakdown of mean use of instructional resources by content and skill areas by teachers of the course at the general level. **Table 8** provides the same information for the advanced level course. These tables indicate the areas where teachers tend to make special use of various resources.

3.3.4 Instructional Strategies

Teachers were asked to indicate the extent to which they used specific instructional strategies in areas such as teacher/student directed instruction, student activities and grouping arrangements. A scale of (1) - (5) indicated whether they used that particular instructional approach "not at all" - (1), to "almost always used" - (5).

Table 9 - Teacher Use of Instructional Strategies presents the aggregated responses from all participating boards . The figures provided by teachers were averaged across the ten content and skill areas and then assigned to one of the five response categories.

Significant variation in reports of instructional practices are apparent in **Table 9 - Teacher Use of Instructional Strategies.** In the case of student directed instruction, about 3 in 20 teachers did not use this approach at all, while a comparable percent of teachers reported this approach to be used often. As was the case for use of instructional resources differences seem to occur among teachers of both the general and advanced level courses rather than between teachers of these two levels of course difficulty.

Graph 4
Emphasis On Instructional Resources
All Participating School Boards

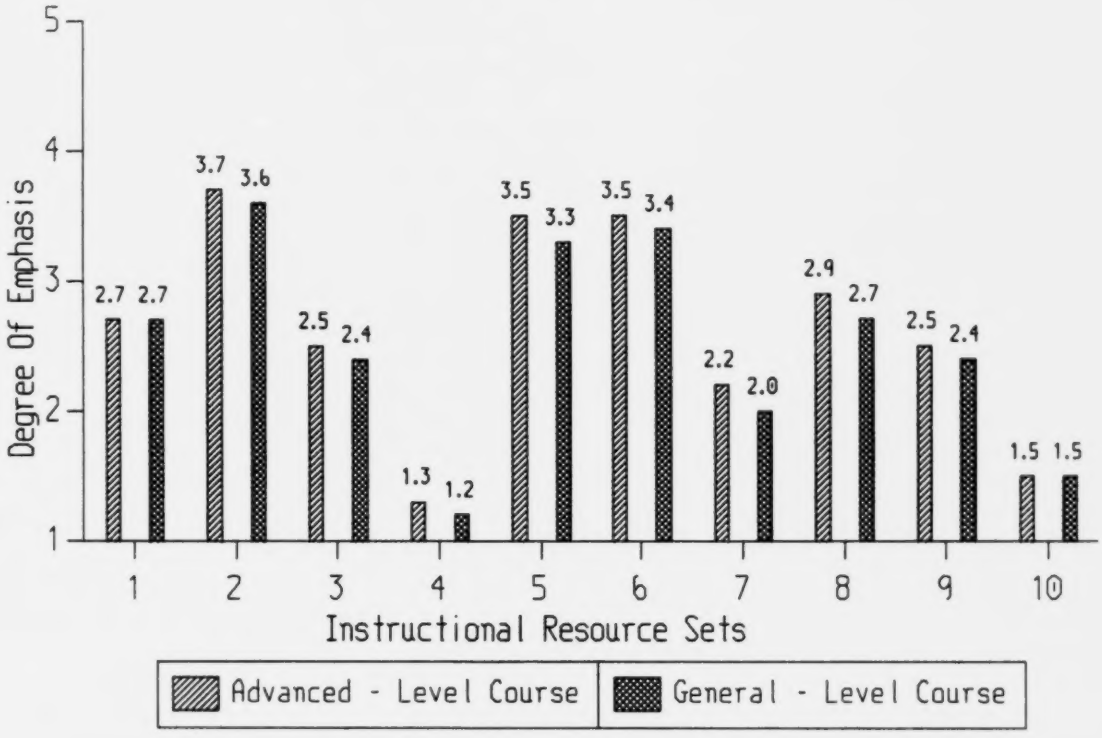


Table 7
Mean Use of Instructional Resources
By Content and Skill Areas
General Level Course
All Participating Boards

Resource Sets:	Content / Skill Areas									
	A	B	C	D	E	F	G	H	I	J
Resource Set 1: -Film Slides Filmstrips	2.4	3.0	4.0	3.7	2.4	2.5	3.4	2.5	1.7	1.5
Resource Set 2: -Overhead Projector Blackboard	3.5	3.8	4.0	3.7	3.7	2.7	3.5	3.5	4.0	3.7
						2.4	3.0	2.1	1.7	1.5

Table 8
Mean Use of Instructional Resources
By Content and Skill Areas
Advanced Level Course
All Participating Boards

Resource Sets:	Content / Skill Areas									
	A	B	C	D	E	F	G	H	I	J
Resource Set 1: -Film Slides Filmstrips	2.5	2.8	4.1	3.7	2.4	2.6	3.5	2.3	1.6	1.4
Resource Set 2: -Overhead Projector Blackboard	3.6	3.9	4.2	3.9	3.8	3.1	3.6	3.7	4.0	3.7
Resource Set 3: -Television VCR Videotape TVO Series	1.8	2.4	3.5	3.4	2.4	2.6	3.2	2.1	1.8	1.6
						1.2	1.4	1.1	1.4	1.4

Table 9
Teacher Use of Instructional Strategies
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Number of Teachers =	207	287

Approach to Instruction - Type One

-Teacher Directed		
Not Used At All	7	3
Rarely Used	6	4
[illegible]imes Used	23	25
	43	40
		28

Graph 5 presents teachers' reports of use of various instructional strategies. The scores are average reports of all participating teachers. The legend of the strategies are:

(1) teacher-directed instruction;
(2) student-directed instruction;
(3) notetaking, textbook assignments;
(4) project work and case studies;
(5) guided discussion;
(6) simulations and role playing;
(7) field work, laboratory work, charting and graphing;
(8) map building and map reading;
(9) individual and independent study;
(10) pairing;
(11) small group work;
(12) whole class work.

Tables 10 and 11 present the percent of teachers reporting use of instructional strategies averaged across the ten content and skill areas.

Teacher-directed instruction was frequently used in both general and advanced level courses. For most student activities, little difference was seen between general and advanced level instructional approaches, although use of virtually all strategies was slightly lower in general level courses. Least used instructional approaches included two areas - simulations and role playing, and small group work. Notetaking, textbook assignments and map work tended to be ranked higher.

Graph 5
Emphasis On Instructional Strategies
All Participating School Boards

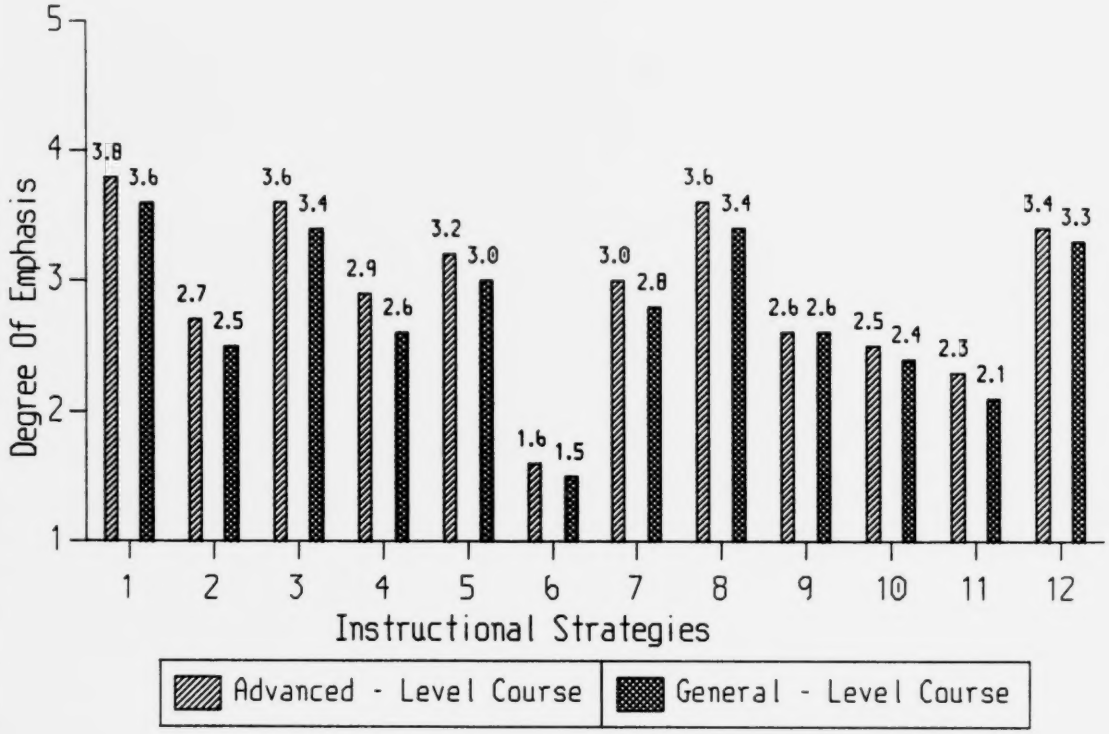


Table 10
Mean Use of Instructional Strategies
By Content and Skill Areas
General Level Course
All Participating Boards

Instructional Strategies	Content / Skill Areas									
	A	B	C	D	E	F	G	H	I	J
Approach To Instruction:										
-Teacher Directed	3.5	3.8	3.9	3.6	3.6	2.9	3.4	3.5	3.7	3.6
-Student Directed	2.7	2.5	2.5	2.6	2.5	2.1	2.5	2.5	2.6	2.3
Student Activities:										
-Notetaking, Textbook Assignments	3.2	3.8	4.0	3.7	3.7	2.9	3.4	3.1	3.4	3.3
-Project Work Case Study	2.9	2.3	2.6	3.1	2.5	2.2	2.8	2.7	2.8	2.5
-Guided Discussion	3.1	3.1	3.2	3.3	3.2	2.6	3.1	2.6	3.0	2.8
-Simulations Roleplaying	1.5	1.3	1.3	2.0	1.6	1.6	1.7	1.3	1.3	1.3
-Field Work Lab Work Charting Graphing	3.0	2.6	2.9	2.7	2.9	2.0	2.6	2.7	3.4	3.1
-Map Building Map Reading	3.6	3.9	4.0	3.3	3.6	2.4	3.0	3.9	3.6	2.6
Grouping Arrangements										
-Individual Independent Study	2.6	2.6	2.6	2.6	2.6	2.2	2.5	2.7	2.9	2.6
-Pairing	2.6	2.2	2.3	2.3	2.3	1.9	2.2	2.9	2.6	2.3
-Small Groups	2.3	2.0	2.2	2.3	2.0	1.9	2.1	2.2	2.1	2.0
-Whole Class	3.3	3.5	3.6	3.3	3.4	2.8	3.3	3.1	3.4	3.2

Table 11
Mean Use of Instructional Strategies
By Content and Skill Areas
Advanced Level Course
All Participating Boards

Instructional Strategies	Content / Skill Areas									
	A	B	C	D	E	F	G	H	I	J
Approach To Instruction:										
-Teacher Directed	3.6	4.1	4.1	3.8	3.9	3.2	3.6	3.8	3.9	3.7
-Student Directed	2.8	2.5	2.6	2.9	2.7	2.3	2.7	2.8	2.8	2.6
Student Activities:										
-Notetaking, Textbook Assignments	3.4	3.9	4.2	4.0	3.9	3.2	3.7	3.3	3.5	3.3
-Project Work Case Study	3.1	2.3	2.9	3.3	2.7	2.5	3.0	3.0	3.0	2.7
-Guided Discussion	3.3	3.3	3.3	3.5	3.5	2.9	3.3	3.0	3.1	2.9
-Simulations Roleplaying	1.5	1.3	1.5	2.2	1.7	1.8	1.9	1.3	1.3	1.3
-Field Work Lab Work Charting Graphing	3.2	2.6	3.0	2.8	3.1	2.3	2.7	2.9	3.7	3.4
-Map Building Map Reading	3.7	3.9	4.1	3.5	3.8	2.6	3.2	4.2	3.7	2.8
Grouping Arrangements										
-Individual Independent Study	2.6	2.5	2.7	2.7	2.6	2.3	2.6	2.7	2.8	2.6
-Pairing	2.7	2.4	2.7	2.6	2.4	2.1	2.3	3.1	2.7	2.5
-Small Groups	2.6	2.1	2.6	2.5	2.3	2.1	2.3	2.3	2.2	2.2
-Whole Class	3.3	3.6	3.3	3.5	3.5	2.9	3.3	3.3	3.4	3.2

3.3.5 Evaluation Techniques

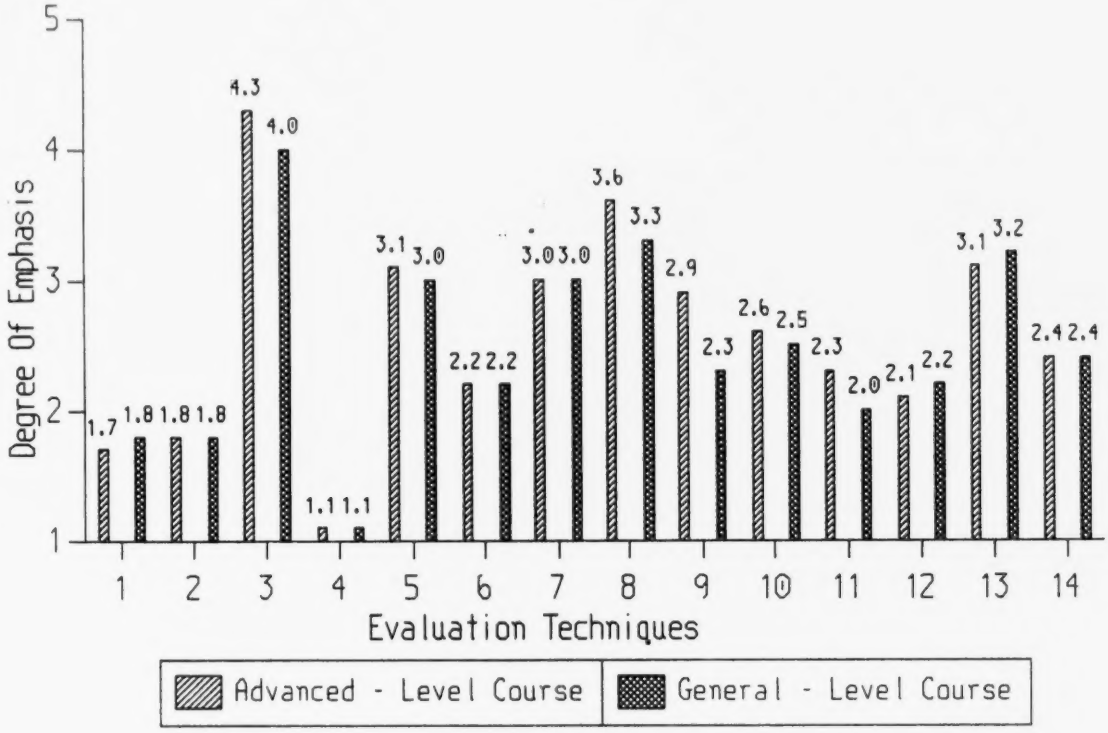
Teachers indicated the extent of use of various student evaluation techniques. The techniques investigated included the nature of the evaluator (eg. self, peer, teacher), specific evaluation techniques used, and factors which may impact on the evaluation of student achievement including projects, long assignments, notebooks, participation and attendance.

Three tables and one graph are used to illustrate the information collected regarding evaluation techniques. **Table 12** presents the percent of teachers in the various response categories averaged across the ten content and skill areas. **Graph 6** presents mean use for teachers of general and advanced level courses.

Table 12
Teacher Use of Evaluation Techniques
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Number of Teachers =	207	287
Evaluators - Type One		
-Self		
Not Used At All	50	51
Rarely Used	28	33
Sometimes Used	16	12
Often Used	3	2
Almost Always Used	3	2
Evaluators - Type Two		
-Peers		
Not Used At All	45	43
Rarely Used	32	32
Sometimes Used	19	21
	3	3
	0	1

Graph 6
Emphasis On Evaluation Techniques
All Participating School Boards



Tables 13 and 14 - Mean Use of Evaluation Techniques by Content and Skill Area describe mean use for each content and skill area.

For **Graph 6 - Emphasis on Evaluation Techniques,** the approaches to evaluation techniques were as follows:

(1) self evaluation;
(2) peer evaluation;
(3) teacher evaluation;
(4) others;

(5) multiple choice, classification, matching, true/false;
(6) OAIP/BIMO;
(7) map/airphoto questions;
(8) short answer, restricted response;
(9) extended answer, essay, free response;
(10) projects;
(11) longer assignments;
(12) notebooks;
(13) participation;
(14) attendance.

Teacher evaluation of student progress is the most widely used technique. Peer and self-evaluation rarely occur at either level of difficulty in Canadian Studies Geography. The only noticeable difference between general and advanced level courses occurs in the extended answer-/essay category. The findings again highlight the great variability in educational practice among teachers of Canadian Studies Geography at both levels of course difficulty.

3.3.6 Hours of Instruction

The Intermediate Geography Guideline (1977) provided little direction concerning amount of time to be spent on specific content and skill areas; this area of investigation was therefore of much interest. Some teachers found the estimation of amount of time spent on each area to be a difficult task; this was understandable if their particular courses of study were organized regionally rather than thematically. In addition, most courses of study had the skills components blended with the knowledge components.

Table 15 provides data on the number of hours of instruction for general and advanced level courses for each of the ten content and skill areas. The number of hours of instruction have been clustered into four groups, 1-5 hours, 6-10 hours, 11-15 hours, and 16 + hours.

The variation among schools in hours spent on the content and skill areas is illustrated in Charts 3 and 4. For each content and skill area, a box shows the middle 50% of average school reports of time spent on the area. For content area (C) **Canada's Physical Geography,** 50% of schools reported spending between 8.5 and 19.5. The line drawn in the box indicates the mid-score or median. Half of the schools in the review reported spending more than 13 hours on Canada's physical geography and half spent less than 13 hours.

The lines extending upward and downward from the box indicate the range of scores of an additional 40% of schools, 20% above and 20% below the middle 50% of schools. Schools that were outside these values, the top 5% and bottom 5%, reported spending either greater than 29 hours or less than 3 hours on Canada's physical geography. Chart 3 shows this data for the ten content and skill areas for schools reporting general level courses. Chart 4 shows this data for schools reporting the advanced level course.

Table 15 provides some interesting statistical data for analysis. It should be noted that the number of teachers changes for each of the ten content and skill areas. This reflects the number of teachers who indicated that they did NOT teach that particular content or skill area. The total number of teachers who taught classes at the general level of difficulty and who participated in the provincial review was 207; at the advanced level, the figure was 287 teachers. The difference between these figures and those listed indicates the number of teachers who did not spend any time on that particular content or skill area.

Table 13
Mean Use of Evaluation Techniques
By Content and Skill Areas
General Level Course
All Participating Boards

Evaluation Techniques	Content / Skill Areas									
	A	B	C	D	E	F	G	H	I	J
Evaluators:										
-Self	1.8	1.9	1.8	1.7	1.7	1.5	1.7	1.9	2.0	1.8
-Peers	1.8	1.8	1.9	1.9	3.7	1.6	1.8	1.8	1.8	1.7
-Teacher	4.0	4.3	4.4	4.2	4.2	3.3	3.8	4.0	4.3	4.0
-Others	1.2	1.2	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1
Techniques:										
-Multiple Choice Classification Matching True/False	2.7	3.3	3.4	3.3	3.1	2.6	3.0	2.8	2.9	2.8
-OAIP/BIMO	1.8	2.4	2.5	2.2	2.2	1.8	2.0	2.4	2.8	2.1
-Map/Airphoto Questions	3.1	3.3	3.5	2.9	3.1	2.2	2.5	4.0	3.0	2.1
-Short Answer Restricted Response	3.4	3.6	3.7	3.6	3.5	2.8	3.4	3.1	3.3	3.1
-Extended Answer Essay Free Response	2.4	2.3	2.5	2.7	2.6	2.2	2.6	2.6	2.0	2.0
Other Factors:										
-Projects	2.9	2.3	2.6	2.9	2.4	2.1	2.7	2.7	2.5	2.2
-Longer Assignments	2.0	1.9	2.0	2.2	1.9	1.7	2.1	2.1	2.0	1.9
-Notebooks	3.1	3.4	3.6	3.4	3.3	2.7	3.1	3.1	3.3	3.0
-Participation	3.2	3.4	3.3	3.3	3.3	2.8	3.1	3.1	3.3	3.1
-Attendance	2.4	2.6	2.6	2.5	2.5	2.2	2.4	2.4	2.5	2.3

Table 14
Mean Use of Evaluation Techniques
By Content and Skill Areas
Advanced Level Course
All Participating Boards

Evaluation Techniques	Content / Skill Areas									
	A	B	C	D	E	F	G	H	I	J
Evaluators:										
-Self	1.7	1.7	1.8	1.7	1.7	1.5	1.7	1.9	1.8	1.8
-Peers	1.8	1.7	1.9	1.9	1.9	1.7	1.8	1.8	1.9	1.7
-Teacher	4.3	4.5	4.6	4.4	4.5	3.7	4.1	4.4	4.5	4.2
-Others	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Techniques:										
-Multiple Choice Classification Matching True/False	2.9	3.3	3.5	3.3	3.2	2.7	3.0	2.9	2.9	2.8
-OAIP/BIMO	1.9	2.4	2.6	2.2	2.2	1.8	2.0	2.5	2.3	2.1
-Map/Airphoto Questions	3.2	3.4	3.7	2.8	3.0	2.2	2.6	4.3	3.2	2.2
-Short Answer Restricted Response	3.6	3.8	3.9	3.7	3.8	3.1	3.6	3.5	3.4	3.3
-Extended Answer Essay Free Response	2.9	2.7	3.3	3.5	3.3	3.0	3.3	2.2	2.3	2.3
Other Factors:										
-Projects	3.0	2.3	2.8	3.0	2.5	2.3	2.8	2.5	2.6	2.3
-Longer Assignments	2.4	2.0	2.5	2.6	2.3	2.2	2.5	2.1	2.2	2.1
-Notebooks	3.0	3.2	3.3	3.2	3.2	2.8	3.1	3.1	3.3	3.0
-Participation	3.1	3.1	3.3	3.2	3.2	2.7	3.0	3.2	3.2	3.0
-Attendance	2.4	2.5	2.6	2.5	2.4	2.2	2.4	2.4	2.5	2.4

The highest number of teachers in both general and advanced level courses occurred in content area (C) - **Canada's Physical Geography** - 194 and 279 respectively. This means that 13 teachers who taught a course at the general level and 8 teachers at the advanced level indicated that they did not teach this particular content area.

Content area (F) - **The Effect of Industrialization and Technological Change on Transportation and Canadian Society** was taught by only 134 of the teachers of general level courses and 209 of the advanced level course teachers.

Table 15
Hours of Instruction by Content and Skill Areas
All Participating Boards

	Hours of Instruction	Percent of Teachers	
		General Level Course	Advanced Level Course
A. Local Community	1 - 5	43	45
	6 - 10	33	36
	11 - 15	18	13
	16+	6	7
	Number of Teachers =	176	256
B. Extent and Location of Canada	1 - 5	57	72
	6 - 10	28	21
	11 - 15	13	6
	16+	3	1
	Number of Teachers =	192	276
C. Canada's Physical Geography	1 - 5	14	8
	6 - 10	22	24
	11 - 15	25	21
	16+	40	48
	Number of Teachers =	194	279
D. Canada's Renewable and Non-Renewable Resources	1 - 5	16	14
	6 - 10	23	26
	11 - 15	21	17
		40	42
			263

Chart 3

Variation In Average Number of Hours of Instruction by Content/Skill Areas (General Level Course) All Participating Boards

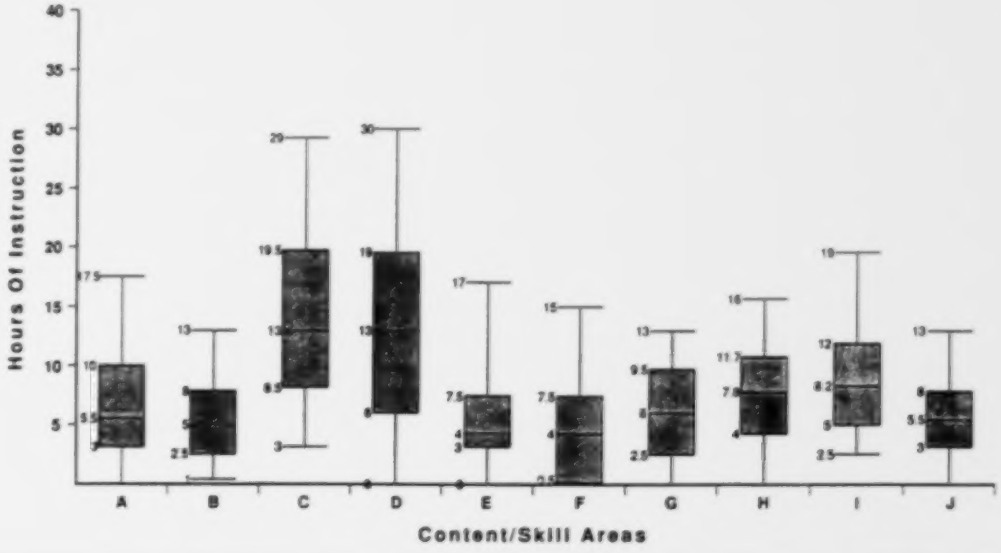
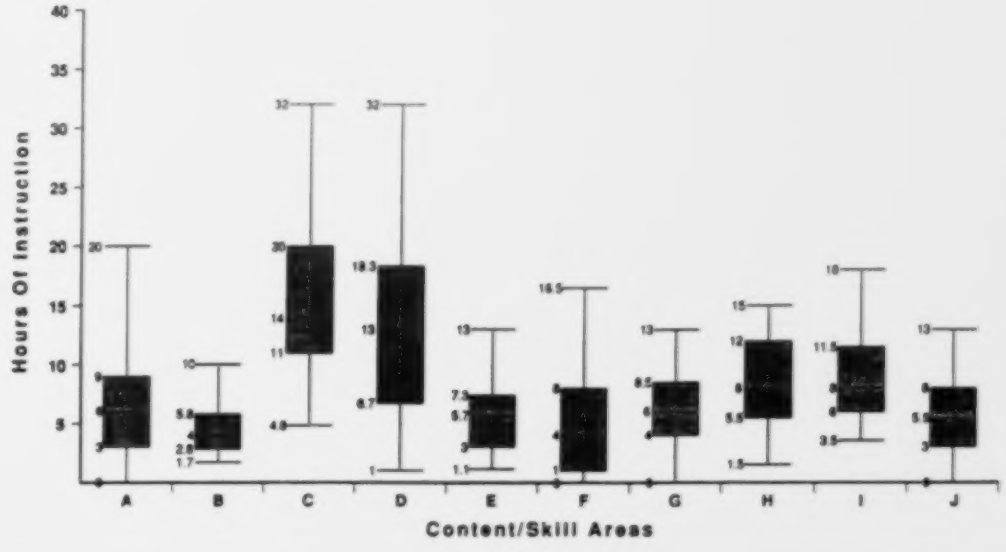


Chart 4

Variation In Average Number of Hours of Instruction by Content/Skill Areas (Advanced Level Course) All Participating Boards



3.4 THE ATTAINED CURRICULUM

The attained curriculum was examined through a direct measurement of student achievement and through an examination of student attitudes towards geography and geography instruction.

3.4.1 Overview of Student Achievement

Achievement was assessed by means of 120 multiple-choice questions administered to students through multiple-matrix sampling. There were five different booklets of test questions each containing 24 questions. Students responded to only one of five booklets. Questions were based on objectives taken from the Intermediate Geography Guideline (1977). Each student answered 13 content-oriented questions and 11 questions associated with skill development.

Graph 7 - Overview of Student Achievement summarizes overall student achievement as a mean percent correct across the 120 questions. The mean percent correct for the advanced level for all of the 120 questions was 66. This was the arithmetic average of the percents for all 120 questions, for students participating in the review. Similarly, the mean percent correct of 52 is the arithmetic mean of the percents for all 120 questions for students at the general level who participated in the review. In effect, 66% of the questions received correct responses at the advanced level of instruction and 52% received correct responses at the general level of instruction.

3.4.2 Student Achievement by Content and Skill Areas

Graphs 8 and 9 indicate levels of achievement for each of the ten content and skill areas for the general level and advanced level courses. The ten content and skill areas are defined across the horizontal axis of the graph and the mean percent correct along the vertical axis. The ten content and skill areas are:

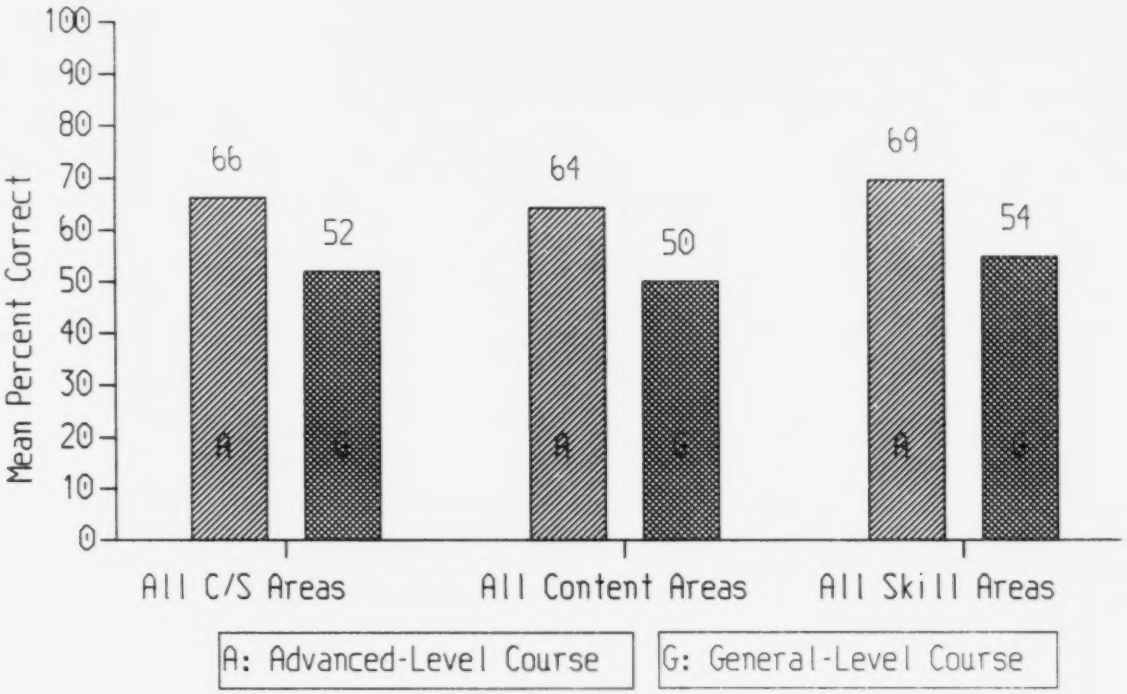
CONTENT AREAS

(A) Local Community
(B) Extent and Location of Canada
(C) Canada's Physical Geography
(D) Canada's Renewable and non-renewable Resources
(E) Distribution of Population in Canada
(F) Effect of Industrialization and Technological Change on Transportation and Canadian Society
(G) Energy Supply in Canada

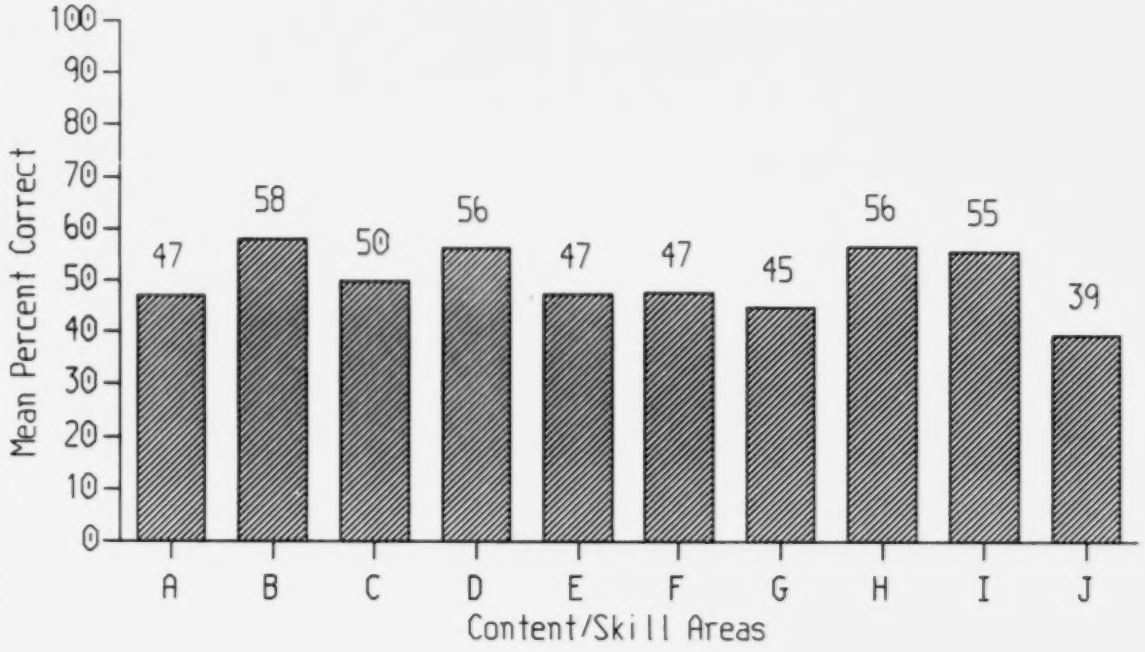
SKILL AREAS

(H) Topographic Maps and Air Photographs
(I) Constructing and Interpreting Maps, Graphs and Thematic Maps
(J) Using Statistics in Geography

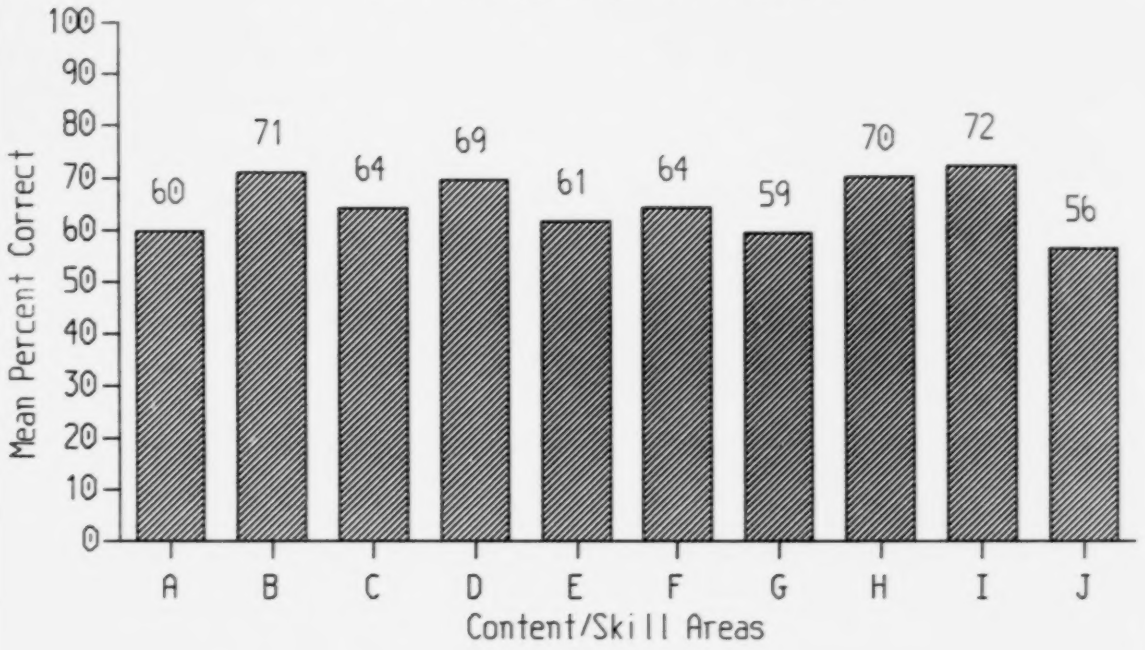
Graph 7
Overview Of Student Achievement
All Participating School Boards



Graph 8
Student Achievement - By Content And Skill Areas
General - Level Course
All Participating School Boards



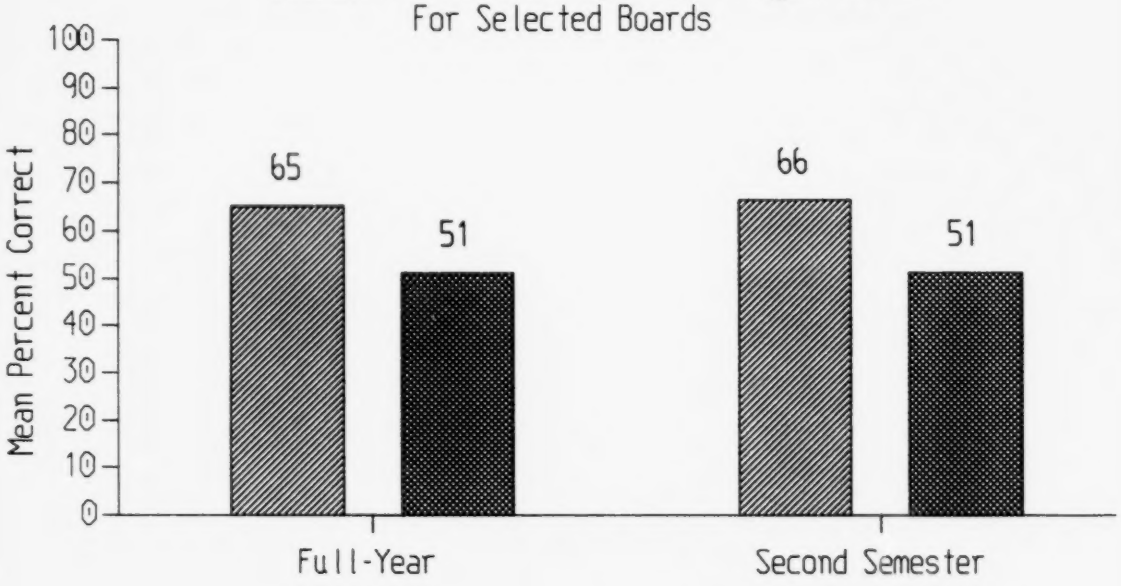
Graph 9
Student Achievement - By Content And Skill Areas
Advanced - Level Course
All Participating School Boards



Highest scores for both the general and advanced level courses were in (B) - **Extent and Location of Canada,** (I) - **Constructing and Interpreting Maps, Graphs and Thematic Maps,** and (H) - **Topographic Maps and Air Photographs.** The lowest scores were in (G) - **Energy Supply,** and (J) - **the Use of Statistics in Geography.** Students taking the course at the general level of difficulty scored relatively high in (D) - **Renewable and Non-renewable Resources.**

The spread between the scores of the general and advanced levels was consistently 13 or 14 points except for (F) - **The Effect of Industrialization and Technological Change on Transportation and Canadian Society,** and (I) - **Constructing and Interpreting Maps, Graphs and Thematic Maps** where the spread was 17 points.

Graph 10
Student Achievement By School Organization
For Selected Boards



Note: Data Is Based On 11 Boards With 37 Semestered Schools
26 Full-Year Schools

Advanced - Level Course | General - Level Course

3.4.3 Student Achievement by School Organization

Graph 10 illustrates the student achievement in semestered and non-semestered schools. To make a valid comparison, only the 11 boards which had both semestered and non-semestered schools were used to develop the graph.

The comparison involved 37 semestered schools and 26 schools in which the Canadian Studies Geography courses were offered over a full year. Since all schools conducted the student assessment in either the last week in May or the first week in June, most schools, whether semestered or non-semestered, had completed the majority of the course work at the time of the assessment. There was no difference in student achievement between semestered and non-semestered schools.

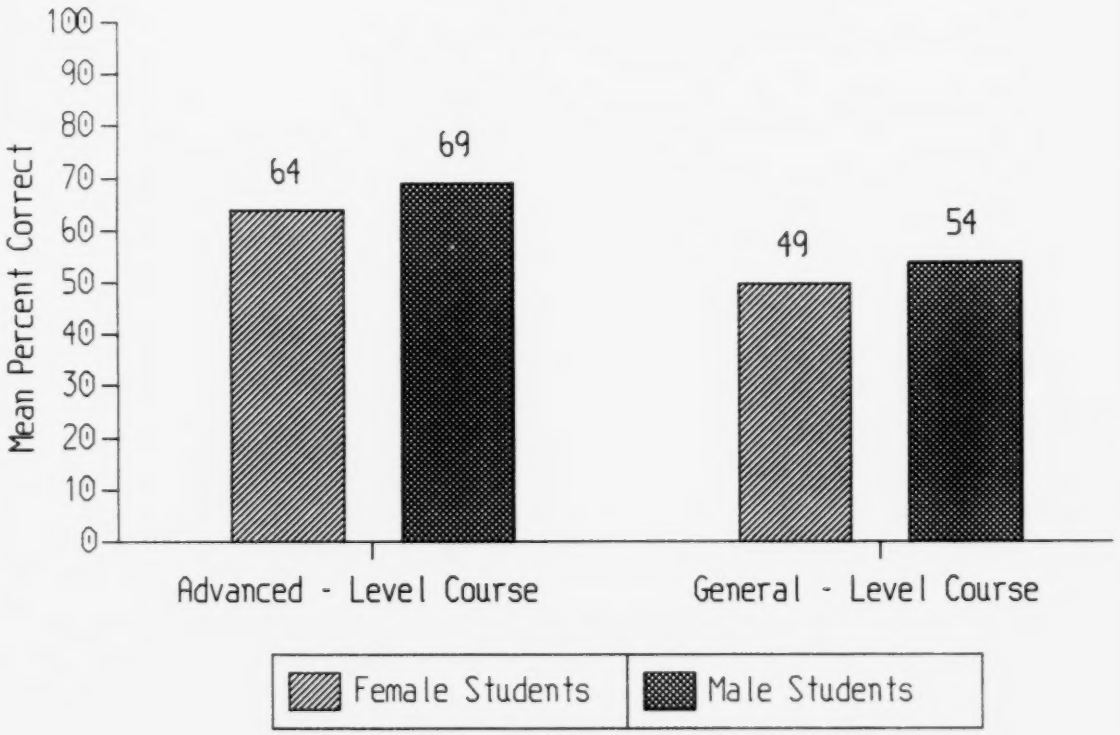
3.4.4 Student Achievement by Gender

Graph 11 presents the mean percent correct for males and females taking the course at the advanced and general level. Student achievement was higher for boys than girls. These differences occurred for both the content areas and for the skill areas.

3.4.5 Item Analysis

Tables 16 and 17 - Item Analysis provide information about student performance on each of the questions. The questions have been grouped by content and skill area. Each student answered one question on the local community. The five questions (questions 1, 27, 53, 79 and 105 from the student booklets) have been grouped together and shown as content and skill area (A), **Local Community. Table 16** provides

Graph 11
Student Achievement By Gender
All Participating School Boards



information regarding student achievement for those who were enrolled in the course at the general level; **Table 17** provides similar information regarding achievement by students taking the course at the advanced level.

For each question, the following is provided: the predicted percent correct (by teachers); the correct answer for the question; the distribution of student choices (by percent); and the total number of responses to the question.

Teachers were asked to provide the percent of students that they thought would get the correct answer for each question. Their predictions are provided in the second column of Tables 16 and 17.

Teacher predictions were fairly accurate; only at the higher and lower ranges of student achievement did the teachers' predictions tend to be more conservative.

The information significant in these two tables will be of value in planning of future courses which deal with the knowledge and skills evaluated by these questions particularly for the participating schols and boards. In this report, the data is for all participants in the review; individual schools and boards have been provided with similar data at the school and board level. *A Guide for Interpreting Board Results* was provided for each participating board and school and is included as an appendix with this report.

Table 16
Item Analysis
General Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
A Local Community	1	63	B	26	48	10	15	1112
	27	54	C	35	7	39	20	1079
	53	60	A	46	4	22	27	1069
	79	56	A	42	5	43	9	1012
	105	43	A	61	14	11	13	1023
B Extent and Location of Canada	2	54	A	71	7	17	5	1111
	28	55	B	10	73	10	7	1083
	54	46	C	22	22	44	12	1065
	80	60	A	66	12	9	13	1008
	106	46	B	34	36	23	7	1022
			A	68	13	14	5	1115
					23	32	1	1113
							22	1117

Table 17
Item Analysis
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
A Local Community	1	72	B	26	57	4	12	2335
	27	67	C	34	2	46	17	2307
	53	72	A	66	2	17	15	2236
	79	69	A	56	1	37	6	2169
	105	62	A	74	10	7	9	2108
B Extent and Location of	2	69	A	81	4	13	2	2333
	28	71	B	3	90	3	4	2310
	54	60	C	13	13	56	18	2228
			A	86	4	2	8	2168
							6	2108

The variation in student achievement among schools is illustrated in **Charts 5 and 6.** For each content and skill area, a box shows the middle 50% of average school achievement in the area. The line drawn in the box indicates the mid-score or median.

The lines extending upward and downward from the box indicate the range of scores of an additional 40% of schools, 20% above and 20% below above the middle 50% of schools. Schools that were outside these values are the top 5% and bottom 5% in terms of student achievement. Chart 5 illustrates the variation in student achievement for the ten content and skill areas for schools offering the course at the general level of instruction. Chart 6 shows the variation for schools offering the course at the advanced level of instruction.

Tables 18 and 19 - Item Data provide question-level information. These tables bring together key elements of the student assessment section of the review along with the Provincial Interpretation Panel rating of the individual questions. A short description of the question (eg. Question 1 dealt with the most appropriate map for finding the distance between cities) is provided and additional columns indicate the p-value (the provincial mean percent correct), opportunity-to-learn, teachers' prediction of the percent of the students who would get the question correct, and the rating of student performance by the interpretation panel.

Suggestions for the analysis and interpretation of this data have been provided in a *Guide for Interpreting Board Results* which was distributed to all school boards participating in the review and included as an appendix with this report.

Chart 5

Variation In Average School Achievement by Content/Skill Areas (General Level Course) All Participating Boards

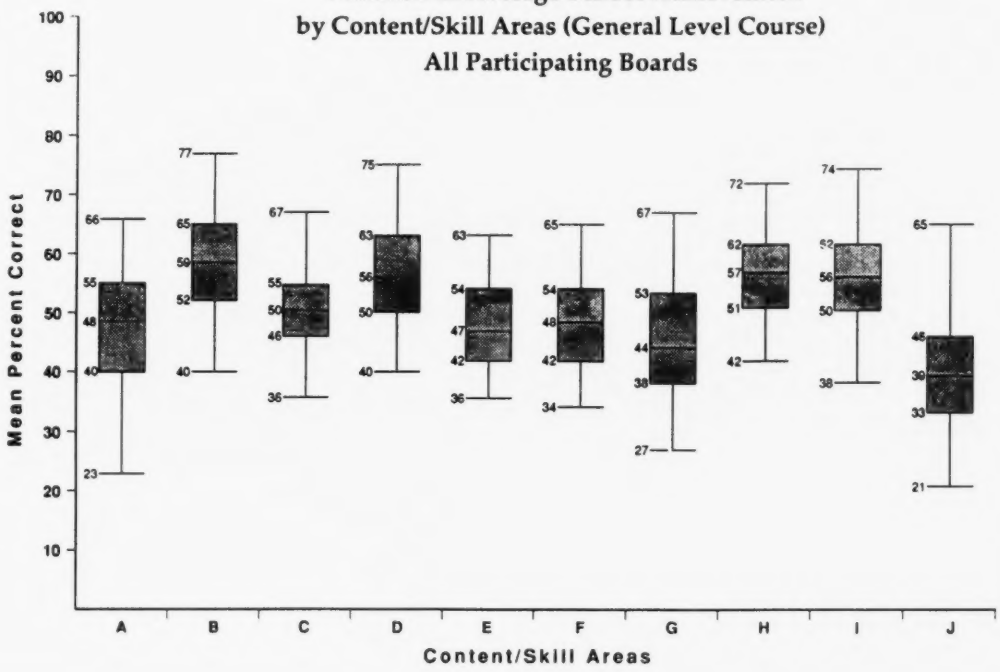
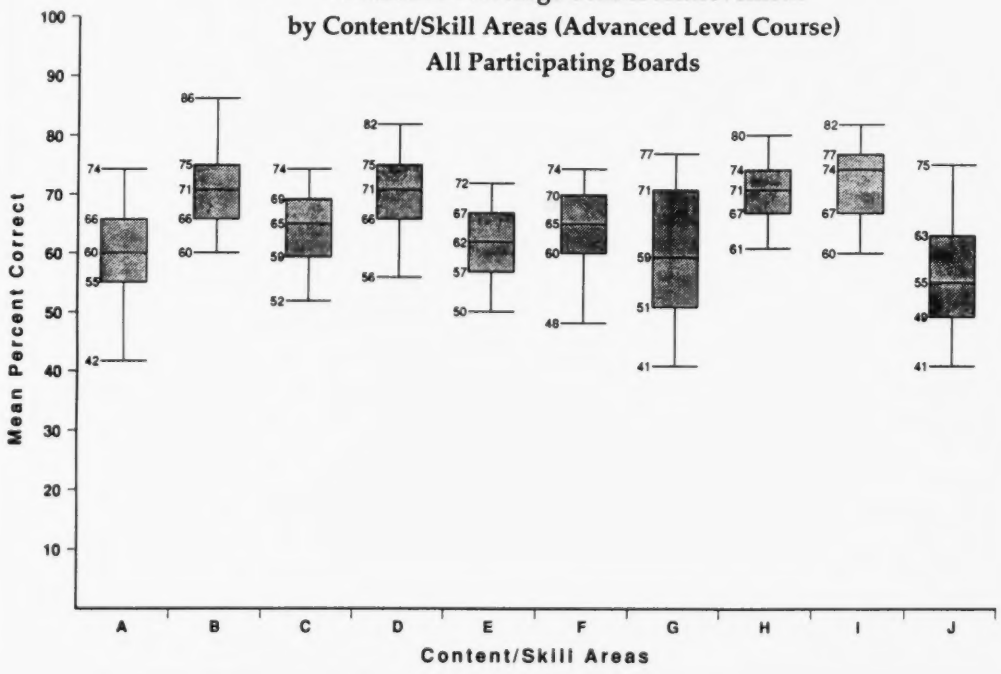


Chart 6

Variation In Average School Achievement by Content/Skill Areas (Advanced Level Course) All Participating Boards



3.4.6 Provincial Interpretation Panel

Following collection and initial scoring, the Provincial Interpretation Panel examined the data. It compared the actual level of student achievement attained with the expected level of achievement and provided interpretive comments on student performance in the review. The panel also provided recommendations regarding current practices in Canadian Studies Geography to improve student achievement.

Panelists were provided with the student assessment booklets in advance of the meeting and were asked to estimate expected levels of performance. Individually, panelists arrived at ratings for the quality of performance for each question. In effect, this was Phase I of a five-part process. The panelists rated student performance at both general and advanced levels using a five-point scale:

5 = Superior
4 = Strong
3 = Satisfactory
2 = Marginal
1 = Weak

In **Phase II,** the panelists were divided into groups of four or five and reached a consensus rating for each item. In this phase, panelists were instructed to consider opportunity-to-learn and other factors which may have affected student performance on the items.

In **Phase III,** the groups were brought together and a single rating was established for each item. These are found in Tables 18 and 19.

In **Phase IV,** new groupings were developed and the ten content and skill areas divided up among the small groups. The group responsible for a specific content or skill area was asked to arrive at a single rating for that area using the same five-point scale. This was done for both general and advanced levels.

Table 18
Item Data
General Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
A	1	Determining distance between cities	48	84	63	3
	27	Locating land use areas	38	68	54	2
	53	Depicting relief on maps	46	85	60	2
	79	Depicting low/poorly drained areas	43	79	56	2
	105	Choosing a map for landforms	61	71	43	4
B	2	Boundary features	71	70	54	5
	28	Neighbouring nations	73	69	55	4
		Parallels of latitude as boundaries	43	71	46	3
		using polar projection	66	84	60	4
		llel	36	82	46	2
			68	84	62	4
			43	63	52	3
						3

Table 20
Interpretation Panel Ratings
of Student Achievement
by Content and Skill Areas
All Participating Boards

Content / Skill Area	General Level Course		Advanced Level Course	
	MPC*	Rating	MPC	Rating
A. Local Community	47	Marginal	60	Marginal
B. Extent and Location of Canada	58	Strong	71	Strong
C. Canada's Physical Geography	50	Satisfactory	64	Satisfactory
D. Canada's Renewable and Non-Renewable Resources	56	Satisfactory	69	Satisfactory
E. Distribution of Population in Canada	47	Satisfactory	61	Satisfactory
F. Effects of Technological Change and Industrialization on Transportation and Canadian Society	47	Satisfactory	64	Satisfactory
G. Energy Supply in Canada	45	Marginal	59	Marginal
H. Topographic Maps and Air Photographs	56	Satisfactory	70	Strong
I. Constructing and Interpreting Charts, Graphs and Thematic Maps	55	Satisfactory	72	Strong
J. Using Statistics in Geography	39	Satisfactory	56	Marginal

* Mean Percent Correct

The groups reconvened (**Phase V**) and a consensus rating was established for each of the ten content and skill areas, for each level of difficulty. The results of the large-group consensus are found in **Table 20.**

Some members of the Provincial Interpretation Panel felt that the range of questions in two of the content and skill areas did not adequately represent a cross-section of what was taught. The two areas were (A) - **Local Community** and (J) - **Statistics in Geography.** In both areas, the number of questions in the student assessment was limited (5 questions). Also, in (A) - **Local Community,** it was felt that many of the questions reflected skills in mapping rather than the content associated with the Local Community.

The panelists made some valuable recommendations for future reviews including:

- widen the base for the content and skill areas by having a wider range of questions
- clarify the use of calculators especially in the area of mathematical applications in geography
- identify different questions for the different levels of difficulty

The panelists also provided some direction for geography and geography instruction; these suggestions will be particularly valuable in the implementation activities associated with the new guideline.

- Student should be given more time and opportunity to PRACTICE skills
- More attention should be given to developing basic concepts such as community, region, energy, renewable resource. Often students have an understanding of the parts of the concepts but lack the "big picture".
- Areas requiring additional time include energy, economic issues, population pyramids, linear scales, and higher level thinking skills
- Place more emphasis on the ownership, development and exploitation of resources
- A full range of methodologies should be considered to address all student learning styles
- Language Across the Curriculum should receive more attention

For students who took the course at the general level, the Interpretation Panel identified one content and skill area as Strong: (B) - **Location and Extent of Canada.** In two areas, (A) - **Local Community** and (E) - **Energy Supply in Canada,** student performance was considered to be marginal.

For students taking the course at the advanced level of instruction, (B) - **Location and Extent of Canada,** (H) - **Topographic Maps and Air Photographs** and (I) - **Constructing and Interpreting Graphs, Charts and Thematic Maps,** were all considered to be strong areas of student achievement.

In addition, three areas were considered to be less than satisfactory (classified as Marginal). These were (A) - **Local Community,** (G) - **Energy Supply,** and (J) - **Using Statistics in Geography.**

3.4.7 Student Attitudes to the Geography Program

In addition to answering the 24 questions directly related to the content and skills areas identified in the guideline, each student was asked to answer two questions related to his/her attitude towards the course in Canadian Studies Geography. The text of the questions and the percent of students providing each response option are presented in **Table 21.**

The number of students responding to each question reflects matrix sampling whereby questions were placed among five assessment booklets, each answered by one fifth of the total population of students involved in the review.

For the questions concerned with the importance of computers, job opportunities, and interest in taking another course, a significant proportion of students indicated that increases in knowledge or improvement in attitudes did not occur at all.

Table 21
Student Attitudes to the Geography Program
All Participating Boards

Responses	Percent of Students	
	General Level Course	Advanced Level Course
1. As a result of the Canada geography course my ability to solve problems associated with geography has increased.		
Not At All	9	7
Some	60	56
A Lot	31	37
Number of Students =	1078	2315
2. As a result of the Canada geography course my understanding of Canada's relations with other ions has increased.		
Not At All	13	12
Some	52	54
A Lot	35	34
Number of Students =	1076	2316
	9	8
		56

4. Linkages Among the Intended, Implemented and Attained Curriculum

A series of analyses were undertaken to examine linkages among various aspects of the intended, implemented attained curriculum. The question asked was "Were there any teacher behaviors, such as coverage of material, instructional time, use of instructional resources, instructional strategies or evaluation techniques, that were associated with levels of student achievement?"

4.1 Nature of the Analyses

To conduct these analyses, each teacher's report of instructional approaches was correlated with their students' overall achievement on the student assessment questions. In most cases, these groups of students reflected single classes of students, but in some cases, students from a number of classes taught by the same teacher.

This information was then aggregated to be used to examine correlations between aspects of the intended, implemented and attained curriculum. Correlations at the individual teacher, school or board levels would not be valid or reliable and thus these results are provided at the provincial level only.

Separate analyses were carried out for the general level and advanced level course. Teacher data was rank ordered from high to low on responses in areas such as use of teacher directed instruction, and groups of students were also ranked from high to low and then the association between these rankings examined. The student scores were the mean percent correct for the achievement questions for each group of students.

The correlation coefficients reported could range from -1.00 to +1.00. A perfect positive correlation would be reflected by a coefficient of 1.00; a perfect negative association would be -1.00. If there was no association at all between two measures, the correlation coefficient would be .00.

An overall pattern of correlations, if consistently observed and congruent with educational notions, can serve as extremely useful hypotheses and provide stimulus for discussion of educational practice. For example, if use of films showed a relationship with achievement, and reports of use of films among teachers was variable but generally low, and educators felt that use of films should be associated with achievement, then it would seem reasonable to suggest greater use of films in Canadian Studies Geography. Similar hypotheses could be developed and discussed concerning other correlations.

4.1.1 Student Achievement and Student Opportunity-to-Learn

Graph 12 presents the correlations of teachers' reports of student opportunity-to-learn (taught, review, or assumed taught prior to the course) with student achievement for each of the ten content and skill areas.

Bars on the graph represent the associations for general level and advanced level classes. These graphs say nothing about the absolute level of coverage or achievement for these areas, (see **Graphs 1,2,3, and 7, 8, 9**) but rather the degree of association between reports of coverage and actual student achievement.

CONTENT AREAS

(A) Local Community
(B) Extent and Location of Canada
(C) Canada's Physical Geography
(D) Canada's Renewable and non-renewable resources
(E) Distribution of Population in Canada
(F) Effects of Industrialization and Technological Change on Transportation and Canadian Society
(G) Energy Supply in Canada

SKILL AREAS

(H) Topographic Maps and Air Photographs
(I) Constructing and Interpreting Charts, Graphs and Thematic Maps
(J) Using Statistics in Geography

As shown in **Graph 12,** all the correlations, with the exception of those for area (I) for both levels, (J) for general level and (B) for advanced level were modest yet, statistically significant. Teachers who reported coverage of more of the geography associated with the questions taught students who answered correctly a greater percent of the questions. The correlations for areas (C), (G) and (H), were especially noteworthy.

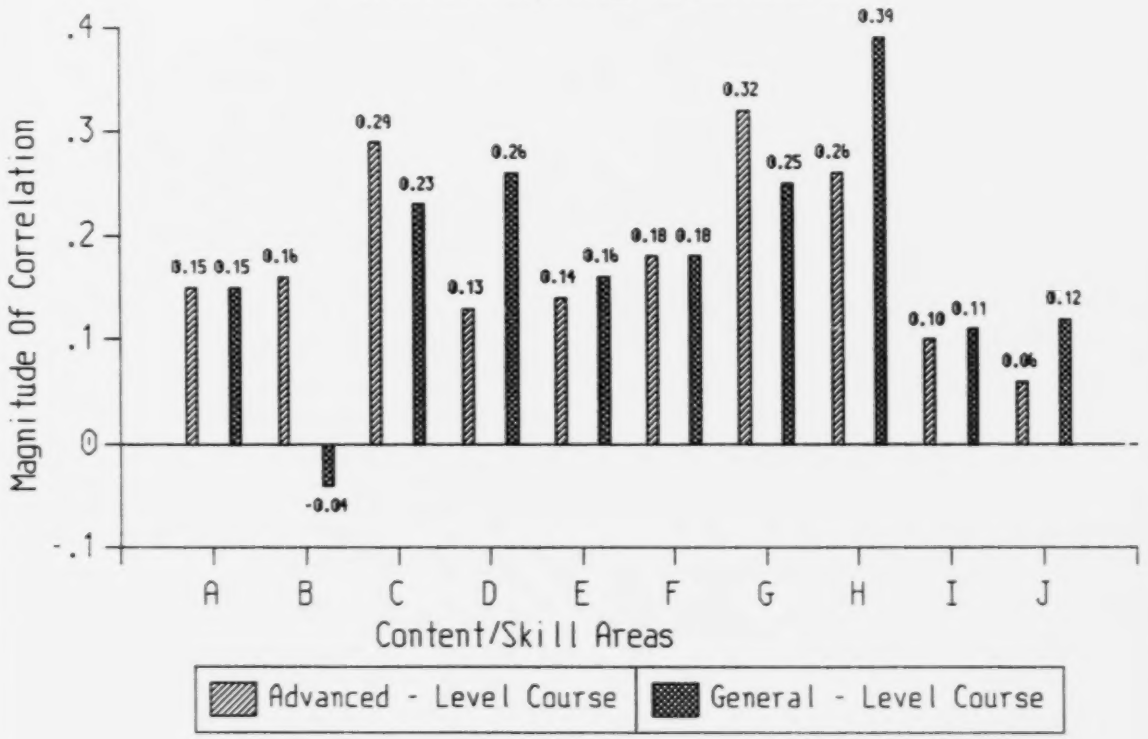
4.1.2 Student Achievement and Instruction

Graphs 13, 14, and 15 provide the correlations associated with teachers' reports of use of resources, instructional strategies, and evaluation techniques.

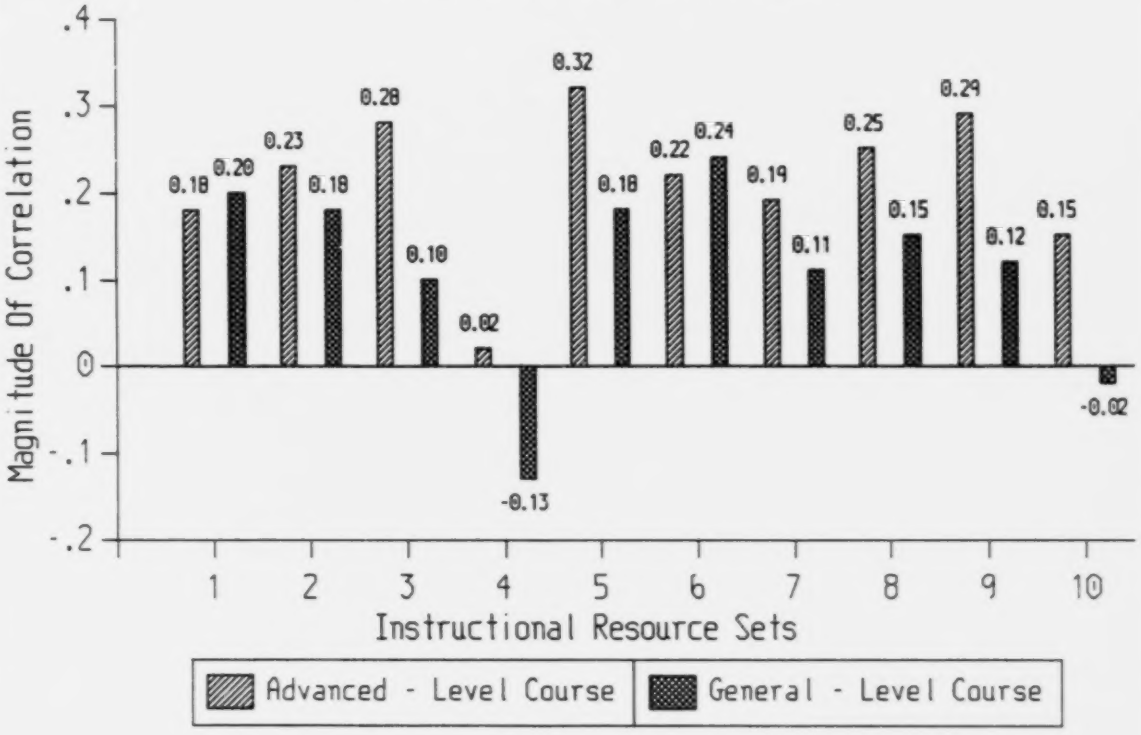
To facilitate examination of the data in **Graph 13,** the instructional resource list is repeated:

(1) films, slides, filmstrips;
(2) overhead projector, blackboard;
(3) television, VCR, videotapes, TVO series;
(4) computer, printer, software programs;
(5) standard atlas, economic atlas, thematic atlas;
(6) student texts, supplementary texts;
(7) library books, journals, magazines;
(8) globes, wall maps, thematic maps, models, stream table;
(9) topographic map sheets, air photos, topo/air photo atlas;
(10) guest speakers, interviews, field trips.

Graph 12
Correlations Of Student Achievement
With Opportunity-To-Learn
All Participating School Boards


Magnitude Of Correlation
.4
.3
.2
.1
0
-.1
0.15 0.15 0.16 -0.04 0.29 0.23 0.13 0.26 0.14 0.16 0.18 0.18 0.32 0.25 0.26 0.39 0.10 0.11 0.06 0.12
A B C D E F G H I J
Content/Skill Areas
Advanced - Level Course
General - Level Course

Graph 13
Correlations Of Student Achievement
With Use Of Instructional Resources
All Participating School Boards



Use of virtually all of the resources was associated with higher student achievement. The exceptions were computer-related, television-related, and guest speakers for the general level course. The negative computer-related finding for the general level course is probably not significant since the number of teachers reported any use of computers was extremely small.

The correlations with achievement of use of atlases, topographic maps, and television were of noticeable magnitude for the both the general and advanced level courses. Greater activity of use was related consistently with higher student achievement in this review.

Graph 14 illustrates the relationship of teachers' reports of use of instructional strategies with student achievement. The instructional strategies are listed below:

(1) teacher-directed instruction;
(2) student-directed instruction;
(3) notetaking, textbook assignments;
(4) project work and case studies;
(5) guided discussion;
(6) simulations and role playing;
(7) field work, laboratory work, charting and graphing;
(8) map building and map reading;
(9) individual and independent study;
(10) pairing;
(11) small group work;
(12) whole class work.

In almost all cases the correlations of instructional approaches with student achievement achieved statistical significance. The exceptions were use of simulations and small group work for the general level course and independent study for the advanced level course.

Graph 15 presents the correlations with student achievement of teachers' reports of use of various evaluation techniques. These techniques were:

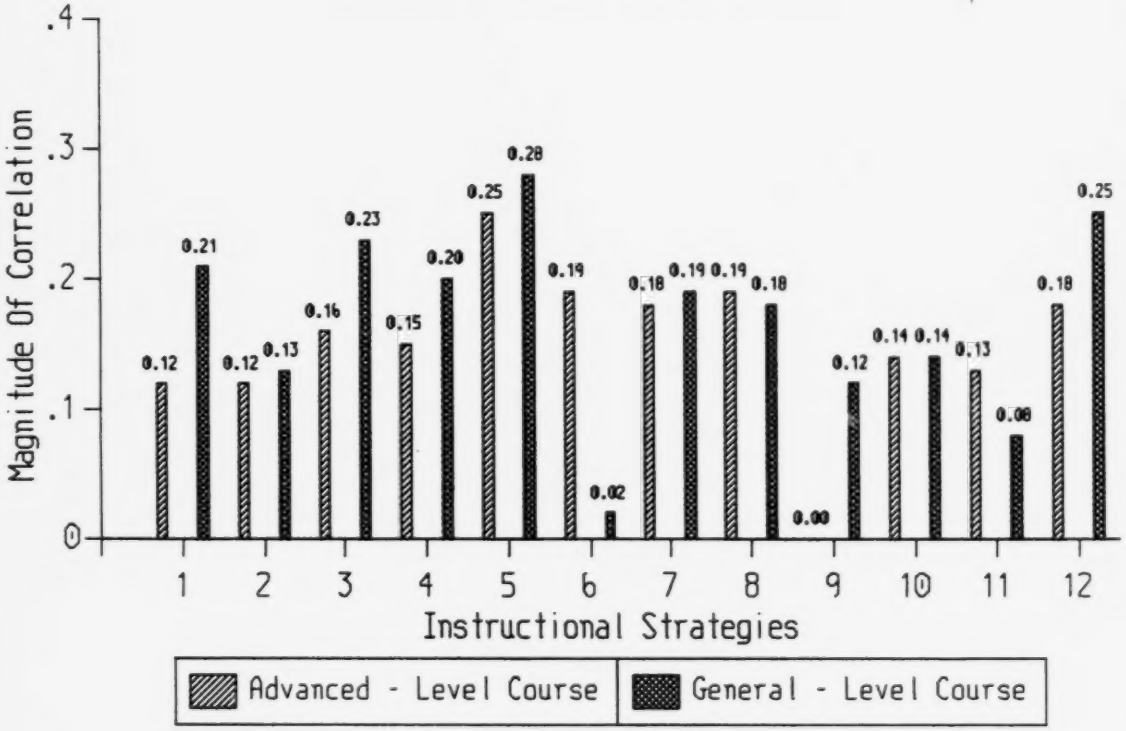
(1) self evaluation;
(2) peer evaluation;
(3) teacher evaluation;
(4) others;

(5) multiple choice, classification, matching, true/false;
(6) OAIP/BIMO;
(7) map/airphoto questions;
(8) short answer, restricted response;
(9) extended answer, essay, free response;
(10) projects
(11) longer assignments;
(12) notebooks;
(13) participation
(14) attendance

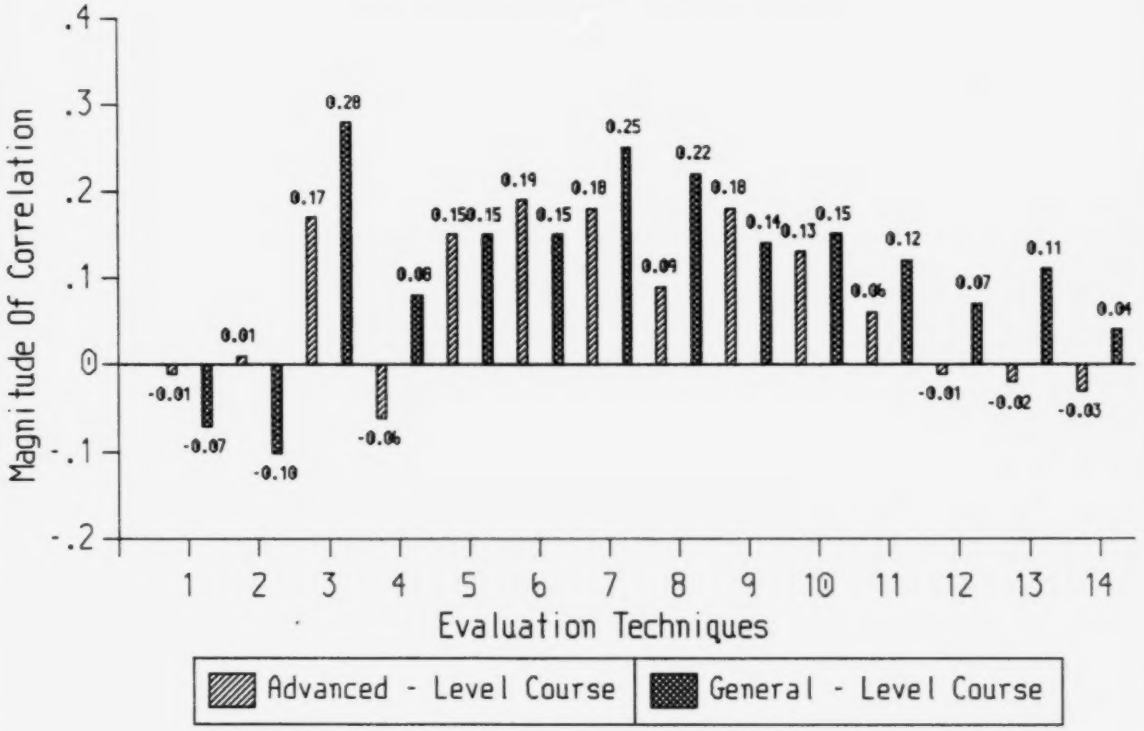
Many of the correlations, although generally low, attained statistical significance. Teachers' reports of greater emphasis on teacher evaluation of student achievement was related to higher levels of student performance as was use of most other techniques. Peer evaluation was related to lower achievement among classes taught at the general level of instruction, and self evaluation was unrelated to student achievement.

Graph 16 shows the relationship between teachers' reports of students' predicted achievement and actual student achievement. The correlations are all statistically significant but the magnitude of the correlations is not high.

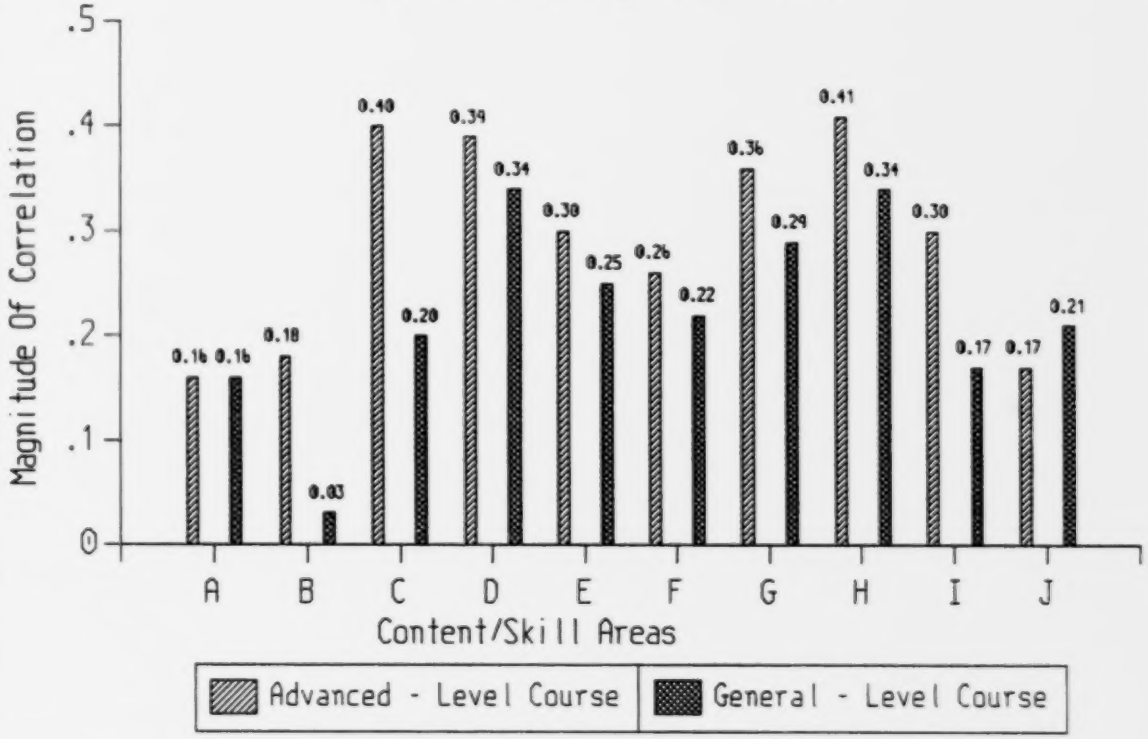
Graph 14
Correlations Of Student Achievement
With Use Of Instructional Strategies
All Participating School Boards



Graph 15
Correlations Of Student Achievement
With Use Of Evaluation Techniques
All Participating School Boards



Graph 16
Correlations Of Student Achievement
With Teacher Predicted Achievement
All Participating School Boards



5. Additional Information

This section details the variety of information found in the school results, board results and the report for all participating boards.

Figure 1 - Listing of Tables, Graphs Charts, and Figures, identifies the information found at each level of reporting.

Figure 2 - Standard Errors by Content and Skill Areas, provides guidelines for interpreting the achievement data in Graphs 7, 8 and 9.

Figure 3 - Standard Errors for Individual Questions, provides guidelines for interpreting the achievement data in Tables 16 and 17

Note: Figures 1, 2, and 3 are provided in the appendices.

Figure 1 - Appendix 15

Figure 2 - Appendix 16

Figure 3 - Appendix 17

5.1 OPERATIONAL STRUCTURE OF THE REVIEW

5.1.1 Program Implementation and Review Branch

The Program Implementation and Review Branch of the Ministry of Education was responsible for coordination of all activities associated with the review in Canadian Studies Geography. However, the actual process could not have been carried out without the assistance of many groups and individuals.

5.1..2 Provincial Consultative Committee

A Provincial Consultative Committee was established to provide the Program Implementation and Review Branch with:

- advice on the design and procedures of the review
- advice on the reporting and use of data collected in the review
- information on the review from constituent groups

The membership of the Consultative Committee can be found in Appendix 14.

5.1.3. Regional Office Co-ordinators

Each Regional Office of the Ministry of Education identified Education Officers who had responsibilities for review activities in the region including the development and screening of instruments, in-service for the board contacts and support to the schools and boards involved in the review. These Education Officers are listed in Appendix 14.

The Education Officers in Regional Offices can provide valuable assistance in understanding the processes involved in reviews and in analyzing the information included in the school reports, board reports and this report of all participating boards.

5.1.4. Provincial Interpretation Panel

An Interpretation Panel was established, consisting of representatives of the various groups upon which the review might have impact - teachers, administrators, trustees, and subject organizations.

Participants in the panel (geography educators, faculty of education personnel, trustees, supervisory officers) were provided with the provincial student achievement results and were asked to provide a rating of student performance based on their own predictions of student achievement, quality of the questions, and their relationship to guideline objectives.

The results of the Provincial Interpretation Panel's deliberations can be found in Tables 18, 19 and 20.

The members of the Provincial Interpretation Panel have been identified in Appendix 14.

5.1.5. Rating Teams

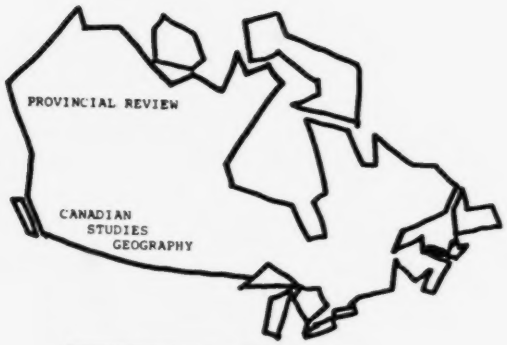
Two teams consisting of teachers, co-ordinators, and Ministry personnel were involved in rating the courses of study submitted the concept and skill instruction forms. These two teams met during the summer of 1987 to complete their tasks.

The members of the two rating teams - one for concepts and skills and the second for the courses of study - have been identified in Appendix 14.

APPENDIX 1

STUDENT ACHIEVEMENT

ITEMS



STUDENT ASSESSMENT BOOKLET

BOOKLET ONE

(YELLOW)

Ministry of Education
Program Implementation
and Review Branch

1. You are doing a study of your community. Select the type of map (A, B, C, or D below) that would tell you most easily the distance from your community to another city.

   A. topographic map of the area

   B. road map of the province

   C. land use map of your community

   D. street map of your community

2. A natural feature forms part of the boundary between the United States and

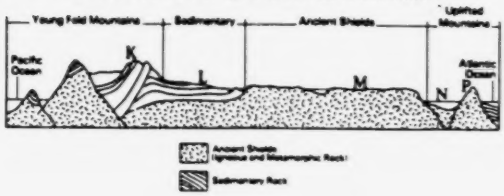
   A. Ontario.

   B. Saskatchewan.

   C. British Columbia.

   D. Manitoba.

CROSS SECTION OF CANADA AT 60°N LATITUDE



3. The land forms have been most strongly influenced by folding in the region represented by the

   A. letter K.

   B. letter L.

   C. letter M.

   D. letter N.

The following question is based on a section of the topographic map of St. Jean, Quebec -- Map 1, Visual Materials: 3.

4. Travelling in a northwesterly direction from the community of St. Grégoire you would reach

   A. Mont St.-Grégoire.

   B. Iberville Junction.

   C. Ile Ste. Marie.

   D. St.-Grégoire (gare).

The following question is based on a section of the topographic map of St. Jean, Quebec -- Map 1, Visual Materials: 3.

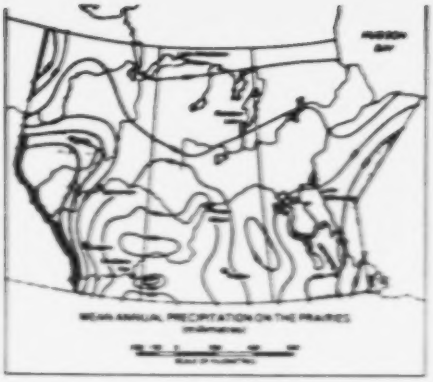
5. The land use on Ile Ste-Thérèse is mainly

   A. commercial.

   B. industrial.

   C. agricultural.

   D. residential.



6. For the statement which follows, indicate whether the information given

   A. is true, based on evidence given on the map.

   B. is false, based on evidence given on the map, or

   C. cannot be determined from evidence given on the map.

   Statement: Winnipeg receives more precipitation on the average than does Edmonton.

7. Natural vegetation is best described as

   A. crops cultivated by man.

   B. gardens with wild flowers and fruit trees.

   C. plant life not cultivated by man.

   D. large areas of mixed forest.

8. This diagram is an illustration of

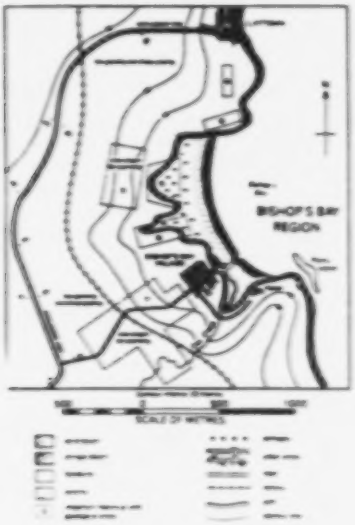
   A. relief (orographic) precipitation.

   B. cyclonic precipitation.

   C. convectional precipitation.

   D. frontal precipitation.

Bishop's Bay Region is a coastal district in which land planning practices (e.g. zoning) are to be used in an attempt to control land-use activities. Bishop's Bay Village and Clifftown are urban areas.



9. Why was a road not built directly north from Bishop's Bay Village to Clifftown?

   A. There would be interference with the local hay growing and sheep grazing activities.

   B. Improved access to the swamp and dune area would make preservation easier.

   C. The terrain in the area would make road construction difficult and expensive.

   D. The area is designated to be used for quarrying purposes.

The following question is based on photographs 1 to 8, Visual Materials: 3.

10. Which one of the following photographs shows evidence that it was taken in a farming region?

    A. Photograph 1

    B. Photograph 4

    C. Photograph 5

    D. Photograph 7

11. In a photograph, you observe much wooded land interrupted by patches of rock. You are most likely right if you assume that

    A. there is not enough rainfall for agriculture.

    B. farming is limited due to the absence of roads.

    C. soils are thin and the area is not suited to agriculture.

    D. there is no demand for food production in this area.

12. Which one of the following pairs of natural resources is most commonly associated with the Prairies region of Canada?

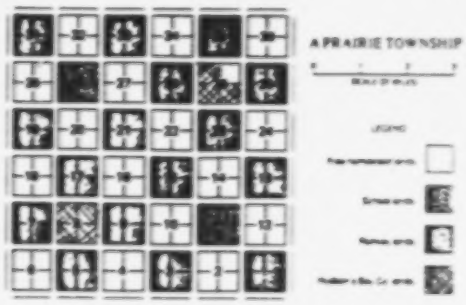
A. petroleum, fertile soils

B. forests, petroleum

C. metals, forests

D. fertile soils, metals

When Canada's prairie land was surveyed for settlement in the 1870's, it was measured out in a rectangular grid system. The diagram below is an illustration of a typical prairie township of 36 sections, each of which is divided into 4 quarter sections.



13. According to the diagram, the area of a typical prairie township was

A. 1 square mile.

B. 6 square miles.

C. 36 square miles.

D. 144 square miles.

The following question is based on Photograph 11 and Map 5, Visual Materials: 3.

14. Which one of the following forms the northern boundary of Central Park?

A. B.C. Electric

B. Imperial Street

C. McKay Jubilee

D. Ringaway

The following question is based on a section of the topographic map of Ignace -- Map 2, Visual Materials: 3.

15. Settlement is sparse on the west side of Agimak Lake because

A. the land is swampy.

B. the land is hilly.

C. there is no way to get there.

D. the land is government owned.

16. In which of the following provinces was the original pattern of population distribution largely determined by a river?

A. Saskatchewan

B. Nova Scotia

C. Quebec

D. Newfoundland

17. The highest proportion of the land in urban areas is used for

A. residential purposes.

B. industrial purposes.

C. commercial purposes.

D. institutional purposes.

18. All except one of the following statements help to explain the large concentration of rail lines in the Prairie Provinces. Select the exception.

A. Railways are needed to transport agricultural products.

B. There is a lack of water transportation in this region.

C. Railways link-up the scattered centres of population.

D. Roads are difficult to build in this region.

The following question is based on Soils of Canada -- map 5, Visual Materials: 2

19. Which soil type is found along the southern shore of Hudson Bay?

A. Subarctic

B. Alluvial

C. Arctic

D. Claybelt Podzolic

The following question is based on The Great Lakes Region -- map 12, Visual Materials: 2.

20. According to the mean surface elevations, in which direction is the water in the Great Lakes flowing?

A. Lake Ontario to Erie to Huron to Superior

B. Lake Erie to Huron to Michigan

C. Lake Superior to Huron to Erie to Ontario

D. Lake Michigan to Huron to Georgian Bay to Superior

21. The primary purpose in the development of high-rise apartments has been to provide

A. dwellings with better views.

B. a variety of types of housing.

C. housing for large numbers of people on small areas of land.

D. luxury housing for wealthy city dwellers.

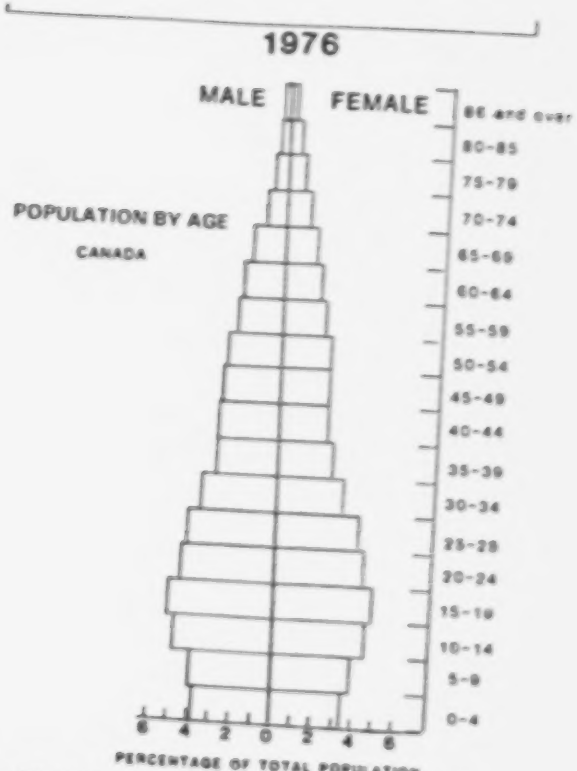
22. Which one of the following sources produces electrical power from a renewable resource?

A. Gas

B. Coal

C. Water

D. Uranium



23. The percentage of Canadians in 1976 in the 15-19 age bracket was approximately

A. 5%.

B. 8%.

C. 10%.

D. 12%.

24. The population density of a city is 700 per km². The city covers an area of 490 km². The population of the city is

A. 3 430.

B. 34 300.

C. 343 000.

D. 3 430 000.

STUDENT ASSESSMENT BOOKLET

BOOKLET TWO

(SAMPLE)

Ministry of Education
Program Implementation
and Review Branch

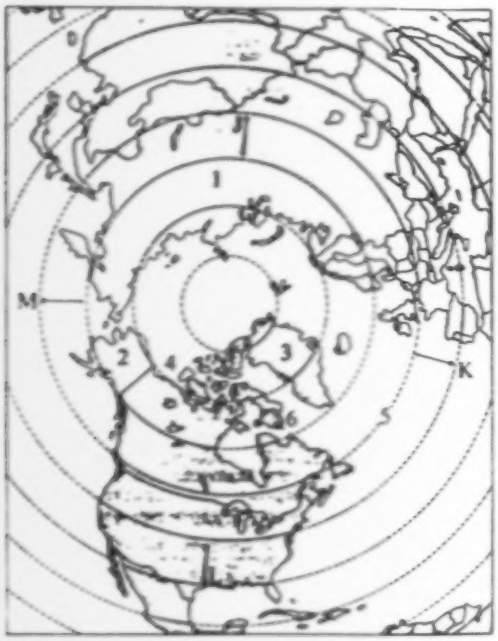
27. You are doing a study of your community. Select the type of map (A, B, C, or D below) that would provide you with the most information about the location of industrial areas in your community.

A. topographic map of the area

B. road map of the province

C. land use map of your community

D. street map of your community



SCALE OF KILOMETRES

28. The country located at number 1 is

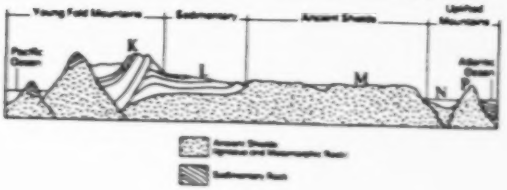
A. United States of America.

B. Union of Soviet Socialist Republics.

C. Norway.

D. China.

CROSS SECTION OF CANADA AT 50°N LATITUDE



29. The region represented by the letter "P" on the cross section is the

A. Western Cordillera.

B. Interior Plains.

C. Canadian Shield.

D. Appalachians.

The following question is based on a section of the topographic map of St. Jean, Quebec -- Map 1, Visual Materials: 3.

30. The direction of travel from Mont St-Grégoire to Iberville is

A. northeast.

B. northwest.

C. southeast.

D. southwest.

The following question is based on a section of the topographic map of St. Jean, Quebec -- Map 1, Visual Materials 3.

31. What is the approximate length of Ile Ste-Thérèse?

A. 4 km

B. 7 km

C. 10 km

D. 39 km

32. Low pressure systems in Canada are normally associated with

A. clear calm weather.

B. windy conditions with clear skies.

C. rising air currents which result in precipitation.

D. falling air currents which create clear conditions.

33. Oak, maple, birch and elm trees are found primarily in areas of

A. coniferous forest.

B. tropical vegetation.

C. deciduous forest.

D. sub-arctic vegetation.

34. The area located in what is termed a "rain shadow" is found at

A. 2.

B. 3.

C. 4.

D. 5.

35. Contour lines drawn close together represent

A. a steep slope.

B. a gently rolling area.

C. a flat area.

D. a gradual change of slope.

The following question is based on the numbers found on photographs 1 to 8, Visual Materials: 3.

36. Thirteen features are numbered in photographs 1 to 8, Visual Materials: 3. At which of these thirteen numbers will you find a railway yard?

A. 2

B. 5

C. 8

D. 9

37. If you were exploring for oil in Canada you would most likely be successful if you chose to drill in the

A. Western Cordillera.

B. Interior Plains.

C. Canadian Shield.

D. Hudson Bay Lowlands.

38. On a topographic map you observe an area of low lying flat land. There are clusters of buildings spread across the area. There are symbols indicating some greenhouses, barns, drainage canals, and small areas of marshland. You are most likely correct if you assume this is an area of

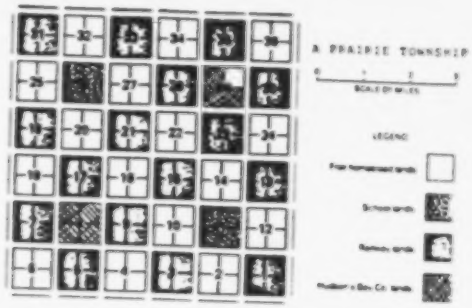
A. beef and dairy cattle.

B. vineyards.

C. orchards.

D. market gardening.

When Canada's prairie land was surveyed for settlement in the 1870's it was measured out in a rectangular grid system. The diagram below is an illustration of a typical prairie township of 36 sections, each of which is divided into 4 quarter sections.



39. Each of the sections was divided into four "quarter sections", thus providing land for four settler families. If settlers took up all of the available homestead land in a typical prairie township, the number of families living in the township could total

A. 16.

B. 36.

C. 65.

The following question is based on Photograph 11 and Map 5, Visual Materials: 3.

40. Examine the cemetery located south of Central Park. Notice the dark area on photograph 11. Which one of the following would best explain its presence?

A. a shadow cast by a cloud when the photo was taken.

B. an area where all the trees have been removed.

C. a former lake bed.

D. an area of poor drainage.

The following question is based on a section of the topographic map of Fort MacKay -- Map 3, Visual Materials 3.

41. The major economic activity in the Mildred Lake area is

A. agriculture.

B. forestry.

C. mining.

D. air services.

42. Which one of the following lists shows the correct order of Canada's three largest cities?

A. Montreal, Toronto, Edmonton

B. Toronto, Montreal, Ottawa

C. Montreal, Toronto, Hamilton

D. Toronto, Montreal, Vancouver

43. In Canada, the areas that are undergoing the most rapid increase in industrial and residential land use are areas

A. where soils are poor.

B. on the fringes of urban centres.

C. of extensive beef grazing.

D. of grain production.

44. Various methods of transportation are used for the movement of goods and people. The most suitable method of transporting wheat for export from prairie grain elevators to the port of Vancouver is

A. road only.

B. rail only.

C. road and rail.

D. air only.

The following question is based on Vegetation Regions of Canada, Visual Materials: 2.

45. What type of forest is found in the most southern part of Canada?

A. Deciduous

B. Boreal Forest

C. Southern Mixed Forest

D. Columbia Forest

The following question is based on The Great Lakes Region -- map 12, Visual Materials: 3.

46. The port that handles the greatest volume of goods is

A. Toronto.

B. Detroit.

C. Chicago.

D. Montreal.

47. In geography, the term "region" is generally used to describe an area having

A. one central governing body.

B. a large concentration of manufacturing activity.

C. one or more common characteristics throughout its extent.

D. similar types of industries.

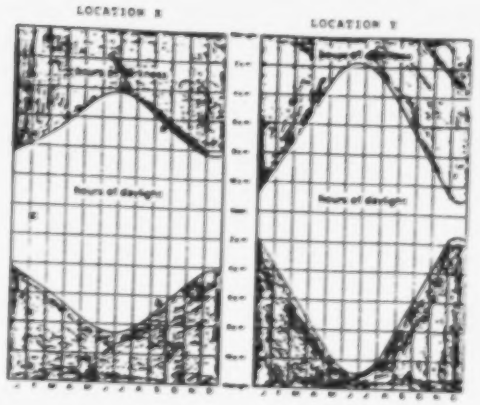
48. Which one of the following methods produces electrical power from a non-renewable resource?

A. thermal-generated electricity

B. solar-generated electricity

C. hydro-generated electricity

D. tidal-generated electricity



The following question is based on the above graph.

49. Remember that both locations are in Canada. Location X is

A. farther south than Location Y.

B. at the same latitude as Location Y.

C. farther north than Location Y.

D. farther west than Location Y.

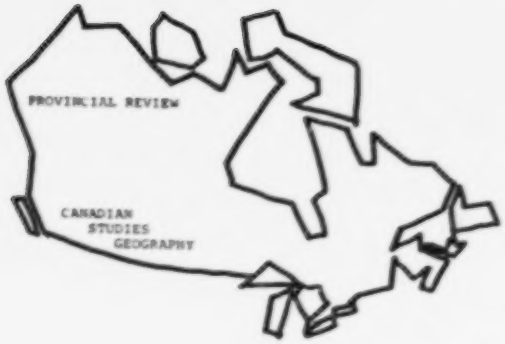
50. A small city which has an area of 50 km² has a population of 40 000. The population density of the city is

A. 8 persons/km².

B. 80 persons/km².

C. 800 persons/km².

D. 8 000 persons/km².



STUDENT ASSESSMENT BOOKLET

BOOKLET THREE
(GREEN)

Ministry of Education
Program Implementation
and Review Branch

53. You are doing a study of your community. Select the type of map (A, B, C, or D below) that would provide you with the best information about the relief of the area around your community.

A. topographic map of the area

B. road map of the province

C. land use map of your community

D. street map of your community

54. The parallel of latitude that forms the boundary between the Prairie Provinces and the Northwest Territories is

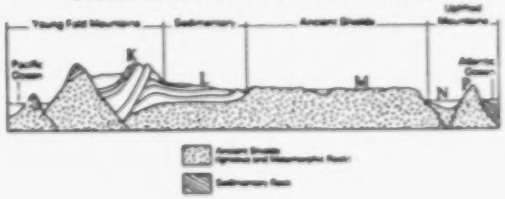
A. 45°N.

B. 50°N.

C. 60°N.

D. 67°N.

CROSS SECTION OF CANADA AT 50°N LATITUDE



55. The region which is composed of almost flat-lying sedimentary rock is represented by the

A. letter K.

B. letter L.

C. letter M.

D. letter P.

The following question is based on a section of the topographic map of St. Jean, Quebec -- Map 1, Visual Materials 3.

56. The contour interval of this map is

A. 100 feet.

B. 50 feet.

C. 25 feet.

D. 10 feet.

57. Another way of stating a map scale of 1:100 000 is

A. 1 cm represents 1 km.

B. 1 cm represents 1 000 km.

C. 1 cm represents 10 000 km.

D. 1 cm represents 100 000 km.

58. During the winter, high pressure systems in Canada usually are associated with

A. cold, clear weather.

B. heavy snow and windy conditions.

C. warm weather and heavy overcast skies.

D. warm, clear weather.

59. In an area known as mixed forest, the natural vegetation is made up mostly of

A. mosses, lichens and wild flowers.

B. broad-leafed deciduous and cone-bearing trees.

C. cone-bearing trees with needle-shaped leaves.

D. stunted scrub growth with a few trees.

60. Winters in Canada are colder than summers because

A. the earth is farther away from the sun in winter.

B. snow reflects much of the heat received from the sun.

C. of shorter periods of daylight, and the spreading out of the sun's rays.

D. the temperature of the sun is lower in winter.

61. The following diagrams show contour lines in four different patterns. The contour interval is the same in each diagram. Which of the diagrams represents the flattest land?

A DIAGRAM A

B DIAGRAM B

C DIAGRAM C

D DIAGRAM D

The following question is based on photographs 1 to 8, Visual Materials: 3.

62. Which photograph shows a portion of a river or lake?

A. photograph 1

B. photograph 2

C. photograph 5

D. photograph 7

63. Which set of manufactured goods listed below is made largely from renewable resources?

A. gasoline, cod liver oil

B. wool sweater, refrigerator

C. dinner knives, books

D. paper, cotton T-shirts

64. Which one of the following resources for the Canadian steel industry in the Great Lakes - St. Lawrence Lowlands must be imported?

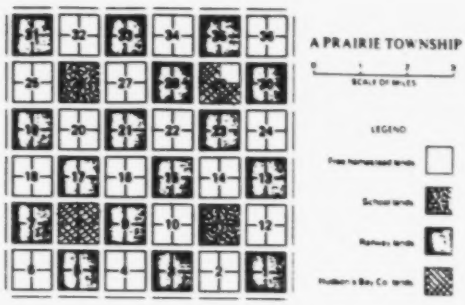
A. Coal

B. Water

C. Scrap Metal

D. Limestone

When Canada's prairie land was surveyed for settlement in the 1870's it was measured out in a rectangular grid system. The diagram below is an illustration of a typical prairie township of 36 sections, each of which is divided into 4 quarter sections.



65. If a settler located on the northeast quarter-section of section 6 on the township map wanted to expand his farm to the north, he would have to buy that land from

A. the school board.

B. Hudson's Bay Company.

C. the railway.

D. the provincial government.

The following question is based on a section of the topographic map of Bridgetown, Nova Scotia and an air photograph of a portion of that map -- Map 4 and Photograph 9, Visual Materials 3.

66. The lake at J2 is

A. Chute Lake.

B. Tellier Lake.

C. Foster Lake.

D. Croskill Lake.

The following question is based on a section of the topographic map of Fort MacKay -- Map 3, Visual Materials 3.

67. The black marks around the settling ponds to the west of the plant indicate

A. a depression.

B. pipelines.

C. a bridge.

D. raised banks.

68. Which of the following areas in Canada has the greatest concentration of population?

A. between Vancouver and Hope, British Columbia

B. between Calgary and Edmonton, Alberta

C. between Sarnia and Toronto, Ontario

D. between Montreal and Quebec City, Quebec

69. Which one of these cities is not an automobile producing centre?

A. Oakville

B. Sudbury

C. Oshawa

D. Windsor

70. Various methods of transportation are used for the movement of goods and people. To supply today's Toronto newspaper in Florida, indicate whether the most suitable method of transportation would be

A. road only.

B. rail only.

C. road and/or rail.

D. air only.

The following question is based on Soils of Canada, map 5, Visual Materials 2.

71. Which soil type covers most of Ontario and Quebec?

A. Rock, Peat and Podzolic

B. Grey-Brown Podzolic

C. Clay Belt Podzolic

D. Podzol

The following question is based on The Great Lakes Region -- map 12, Visual Materials 2.

72. Of the four ports listed below, which one handles less than 5 000 000 tonnes of goods per year?

A. Montreal

B. Detroit

C. Toronto

D. Chicago

73. Which one of the following statements does not accurately describe the industrial heartland of a country?

A. the region which has the greatest concentration of manufacturing activity.

B. the region in which there is a large concentration of transportation routes.

C. the region which has the greatest concentration of farming or lumbering activities.

D. the region in which a country's financial institutions are concentrated.

74. Which of the following is the main objection to the construction of pipelines in northern Canada?

A. Pipeline construction disrupts the natural environment.

B. Pipeline construction requires a large work force.

C. Pipelines are an inefficient method of transporting oil.

D. Pipelines require a long time to build.

The following question is based on The Great Lakes Region -- map 12, Visual Materials 2.

75. A person starting at the western end of Hwy 401 and travelling east, would pass through the following cities in this order.

A. Windsor, Sarnia, Toronto, Kingston, Montreal

B. Windsor, Toronto, Kingston, Montreal

C. Montreal, Kingston, Toronto, Hamilton, Windsor

D. Montreal, Kingston, Toronto, Windsor

76. The population density of a city is 500 persons/km². The town has a population of 300 000 people. The area of the town is

A. 60 km².

B. 600 km².

C. 6 000 km².

D. 60 000 km².

STUDENT ASSESSMENT BOOKLET

BOOKLET FOUR
(BUFF)

Ministry of Education
Program Implementation
and Review Branch

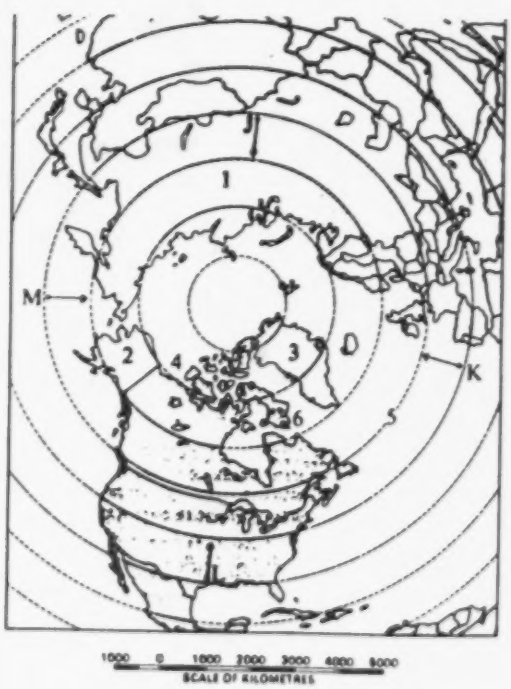
79. You are doing a study of your community. Select the type of map (A, B, C, or D below) that would provide you with the most information about the location of low, poorly drained land in the area around your community.

A. topographic map of the area

B. road map of the province

C. land use map of your community

D. street map of your community



80. In which direction is each of the four arrows at J, K, L, and M pointing?

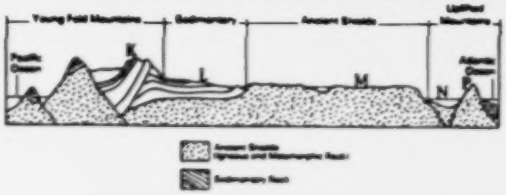
A. All arrows are pointing north.

B. J is pointing south, K west, L east, M north.

C. J is pointing south, K east, L west, M north.

D. J is pointing south, K, L, and M are pointing north.

CROSS SECTION OF CANADA AT 50°N LATITUDE



81. The region which is formed of the oldest igneous and metamorphic rock is represented by the

A. letter K.

B. letter L.

C. letter M.

D. letter N.

The following question is based on a section of the topographic map of St. Jean, Quebec -- Map 1, Visual Materials 3.

82. The elevation of the bench mark at St.-Grégoire is

A. 120 feet.

B. 140 feet.

C. 160 feet.

D. 180 feet.

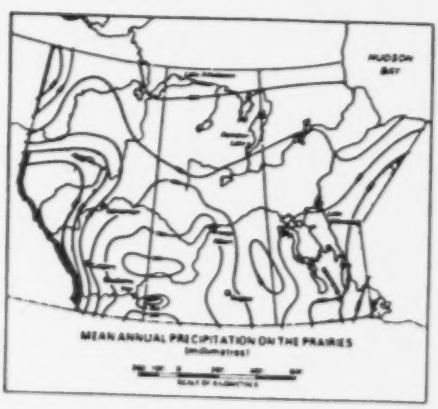
83. Which one of the following map scales would show the greatest detail in a landscape?

A. 1:500 000

B. 1:250 000

C. 1:100 000

D. 1:25 000



84. For the statement which follows, indicate whether the information given

A. is true, based on evidence given on the map,

B. is false, based on evidence given on the map, or

C. cannot be determined from evidence given on the map.

Statement: Medicine Hat receives more precipitation on the average than does Calgary.

85. The "tree line" refers to the

A. northern limit of a particular species of tree.

B. approximate northern limit of tree growth.

C. line up to which the land has been cleared for agriculture and beyond which it is still in forest.

D. blaze marks used by a logging survey crew to identify trees for cutting.

86. The natural vegetation of the Prairie Region of Canada is made up primarily of grassland because

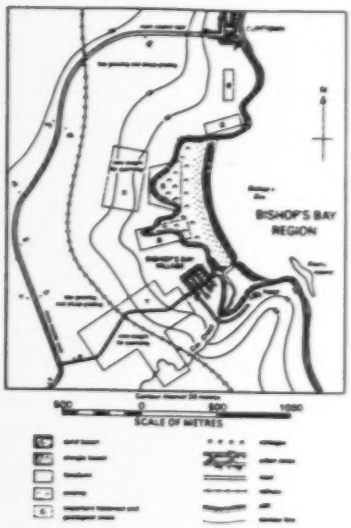
A. there is not enough precipitation to support extensive tree growth.

B. the winter temperatures are too cold for trees to survive.

C. the early settlers cut down the trees to use for log cabins and fences and to clear fields for pasture and grain crops.

D. the soils are too poor to allow the growth of trees.

Bishop's Bay Region is a coastal district in which land planning practices (e.g. zoning) are to be used in an attempt to control land-use activities. Bishop's Bay Village and Clifftown are urban areas.



87. The approximate air distance from the centre of Bishop's Bay Village to the centre of Clifftown is

A. 900 m.

B. 1600 m.

C. 1900 m.

D. 2400 m.

The following question is based on photographs 1 to 8, Visual Materials 3.

88. What is the major land use at location 10 in photograph 6?

A. agricultural

B. industrial

C. commercial

D. residential

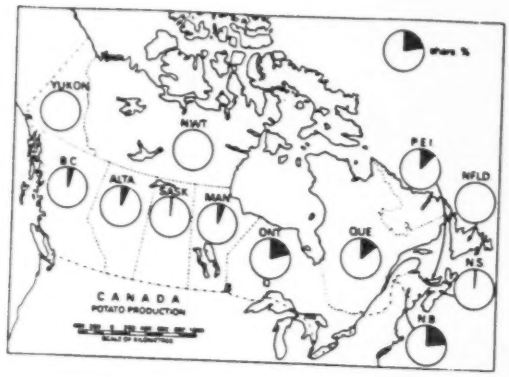
89. Most of the natural gas used in Ontario comes from

A. Nova Scotia.

B. Saskatchewan.

C. Alberta.

D. United States.



This map shows the share that each province and territory has had of the total potato crop in Canada in a recent year.

90. The two provinces that produce the greatest amount of potatoes are

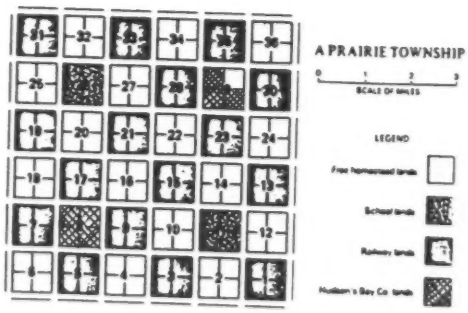
A. New Brunswick and Ontario.

B. New Brunswick and Prince Edward Island.

C. Prince Edward Island and Quebec.

D. Quebec and Ontario.

When Canada's prairie land was surveyed for settlement in the 1870's it was measured out in a rectangular grid system. The diagram below is an illustration of a typical prairie township of 36 sections, each of which is divided into 4 quarter sections.



91. Each of the large squares represents one "section" of land. In a typical prairie township, the land granted to the railways totaled

A. 16 sections.

B. 18 sections

C. 19 sections.

D. 19 3/4 sections

The following question is based on a section of the topographic map of Bridgetown, Nova Scotia and an air photograph of a portion of that map -- Map 4 and Photograph 9, Visual Materials 3.

92. After examining BOTH the map and the air photograph, determine which of the following is the major use of the land at C on the photograph.

A. a golf course

B. housing

C. an orchard

D. a recreational compound

The following question is based on a section of the topographic map of Ignace -- Map 2, Visual Materials 3.

93. Fire lookout 31 north of Ignace is located at this position because it is

A. easily accessible by road.

B. a level area, easy to build on.

C. a high point of land.

D. in a low-lying forested area.

94. In which of the following regions of Canada is the population evenly distributed but of low density?

A. Cape Breton Island

B. Southern Saskatchewan

C. Fraser River Delta

D. Golden Horseshoe

95. Which one of these cities is not a primary steel producing centre?

A. Sydney, Nova Scotia

B. Hamilton, Ontario

C. Sault Ste. Marie, Ontario

D. Thunder Bay, Ontario

96. The inland waterway that has the greatest economic importance to Canada is

A. the MacKenzie River.

B. the South Saskatchewan River.

C. the Great Lakes and St. Lawrence River System.

D. the Athabasca/Peace River System.

The following question is based on Vegetation Regions of Canada -- map 6, Visual Materials 2.

97. Which one of the following provinces has the largest area of grassland?

A. Ontario

B. Saskatchewan

C. British Columbia

D. Alberta

The following question is based on Soils of Canada, and Vegetation Regions of Canada -- maps 5 and 6 in Visual Materials 2.

98. Note that Yellowknife, Northwest Territories lies within the Tundra and Boreal Forest Transition region. In what soils type is Yellowknife located?

A. Grey-Brown Wooded

B. Podzol

C. Subarctic (Rock, Peat and Swamp)

D. Arctic (Permafrost)

99. The term "site" used in relation to an industry refers to

A. the tendency to limit the height of the factory buildings.

B. the location of the industry in respect to nearby towns and cities.

C. the ease of access the industry has to other industries in the area.

D. the actual land upon which the industry is built.

100. Petroleum is one of the fossil fuels -- it is found in

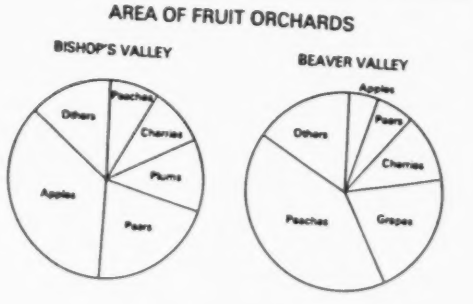
A. volcanic rocks.

B. igneous rocks.

C. sedimentary rocks.

D. meteoritic rocks.

The following question is based on the two circle graphs below.



101. Which of the following fruit crops occupies the second largest percentage of orchard land in Beaver Valley?

A. apples

B. peaches

C. grapes

D. cherries

102. In 1971, the population of Newfoundland was approximately 522 000. The population of Canada that year was approximately 21 600 000. Newfoundland's population as a percentage of Canada's was approximately

A. 24.0%.

B. 2.40%.

C. 0.24%.

D. 0.02%.

STUDENT ASSESSMENT BOOKLET

BOOKLET FIVE

(PINK)

Ministry of Education
Program Implementation
and Review Branch

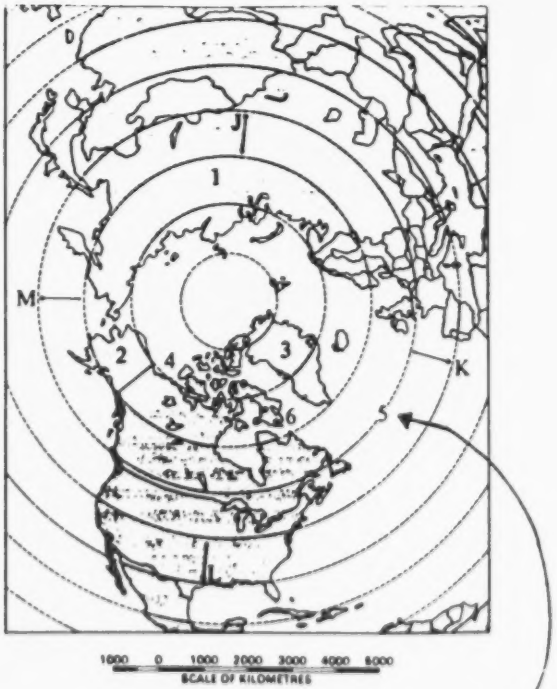
105. You wish to study the landforms of your local area. The best map for this purpose would be one drawn to a scale of

A. 1: 50 000.

B. 1: 250 000.

C. 1: 500 000.

D. 1: 1 000 000.



106. The parallel of latitude at number 5 is

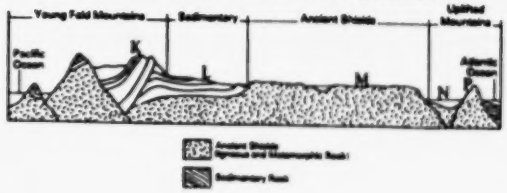
A. 40°N

B. 50°N

C. 60°N

D. 70°N

CROSS SECTION OF CANADA AT 60°N LATITUDE



107. The area which is undergoing extensive alpine glaciation is represented by the

A. letter K.

B. letter L.

C. letter M.

D. letter N.

The following question is based on a section of the topographic map of St. Jean, Quebec -- Map 1, Visual Materials 3.

108. On this topographic map, the symbol represents

A. a highway.

B. a cemetery.

C. a railway siding.

D. a bridge.

The following question is based on a section of the topographic map of St. Jean, Quebec -- Map 1, Visual Materials 3.

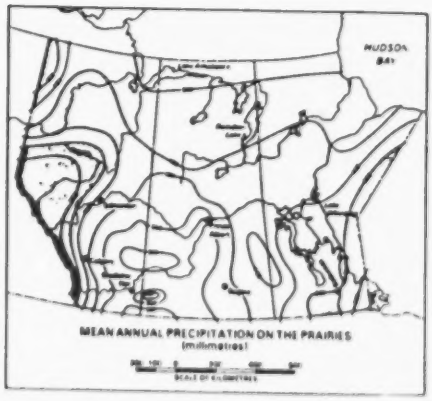
109. Which of the following statements accurately describes the land elevation as you travel along highway 104 from St-Grégoire to Iberville Junction?

A. The land rises gradually.

B. The land descends gradually.

C. The land rises abruptly.

D. The land descends abruptly.



110. For the statement which follows, indicate whether the information given

A. is true, based on evidence on the map,

B. is false, based on evidence given on the map, or

C. cannot be determined from evidence given on the map.

Statement: Areas to the north and west generally receive more precipitation than does the south central area.

111. Coniferous vegetation is best described as

A. broad-leafed evergreen trees.

B. tall grasses and scattered bushes.

C. broad-leafed trees which lose their leaves once a year.

D. cone-bearing trees with needle-shaped leaves.

112. An area in Canada has summer temperatures averaging 15°C to 18°C and annual precipitation of 35 cm. The natural vegetation in this region is

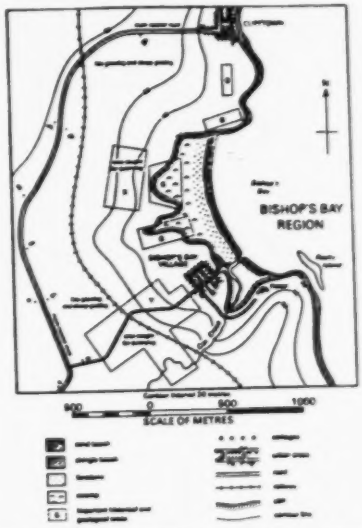
A. deciduous forest.

B. grassland.

C. tropical rain forest.

D. desert vegetation.

Bishop's Bay Region is a coastal district in which land planning practices (e.g. zoning) are to be used in an attempt to control land-use activities. Bishop's Bay Village and Clifftown are urban areas.



113. Why was Bishop's Bay Village not built due north of its present location?

A. The land is swampy and unsuitable for building purposes.

B. It is too far from road and rail communication.

C. Blowing sand and salt spray would be an annoyance to the residents.

D. Important historical and geological features cover the whole area.

The following question is based on photographs 1 to 8, Visual Materials: 3.

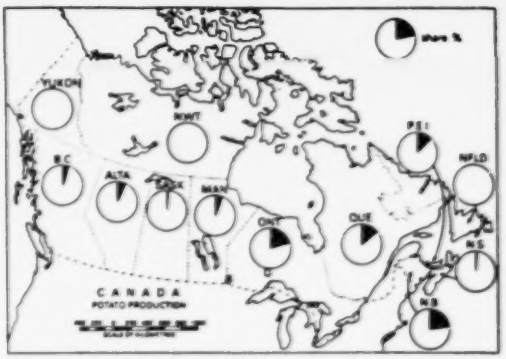
114. Which one of these locations shows a hay field?

A. area 1 in photograph 1

B. area 6 in photograph 3

C. area 7 in photograph 3

D. area 9 in photograph 6



This map shows the share that each province and territory has had of the total potato crop in Canada in a recent year.

115. The percentage of Canada's potato crop that is harvested in Manitoba is

A. larger than that harvested in Quebec.

B. smaller than that harvested in Saskatchewan.

C. similar to that harvested in Alberta.

D. approximately 23% of the total Canadian crop.

116. A prospector looking for metallic minerals in Canada would most likely be successful if he explored the

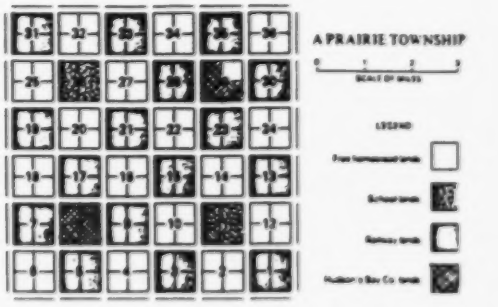
A. Canadian Shield.

B. Interior Plains.

C. Great Lakes-St. Lawrence Lowlands.

D. Appalachian Region.

When Canada's prairie land was surveyed for settlement in the 1870's, it was measured out in a rectangular grid system. The diagram below is an illustration of a typical prairie township of 36 sections, each of which is divided into 4 quarter sections.



117. The rectangular township survey system was an appropriate pattern to use in the prairie region of Canada because

A. there were very few trees.

B. new, more accurate survey instruments were available.

C. the new settlers were demanding larger farms.

D. the land was level.

The following question is based on Photograph 11 and Map 5, Visual Materials 3.

118. The feature shown in the northeast corner of Central Park, across the tracks on both the photograph and the map is

A. forested land.

B. an industrial complex.

C. a baseball field

D. a parking lot.

The following question is based on a section of the topographic map of Fort MacKay -- Map 3, Visual Materials 3.

119. The portion of the map that is white indicates

A. the land has been cleared.

B. the swamps have been drained.

C. the land has been raised.

D. the area has been burned.

120. In 1987, the province with the largest population is

A. Ontario.

B. Quebec.

C. British Columbia.

D. Alberta.

121. Which one of the following factors best explains why the Maritime region of Canada has not developed a large urban population based on industry?

A. Many of the young people are leaving the Maritimes.

B. The soils are too poor to support a large population.

C. The area is too far from major markets.

D. Transportation in the area is difficult.

122. In Canada, water transportation is used primarily to move

A. manufactured goods and agricultural commodities.

B. petroleum and petroleum products.

C. fruit and perishable commodities.

D. bulky goods and raw materials.

The following question is based on Vegetation Regions of Canada -- map 6, Visual Materials 3.

123. Which one of the following lists has the vegetation regions correctly arranged in order of size from largest to smallest, according to the amount of area they cover in Canada.

A. Boreal Forest, Tundra, Grasslands, Coast Forest

B. Coast forest, Southeastern Mixed Forest, Boreal Forest, Grassland

C. Montane Forest, Tundra, Grassland, Deciduous Forest

D. Tundra, Deciduous Forest, Grassland, Montane Forest

The following question is based on Soils of Canada, and Vegetation Regions of Canada -- maps 5 and 6, Visual Materials 3.

124. Which one of the following forest zones is found in the region of Podzol soils (legend number 7)?

A. Southeastern Mixed Forest

B. Deciduous Forest

C. Columbia Forest

D. Montane Forest

125. Which one of the following would be most useful in identifying a manufacturing region?

A. statistics on the percentage of the work force employed in industry.

B. statistics on the birth rate and the death rate.

C. statistics on the net rural-urban migration.

D. statistics on the availability of hydro electricity.

126. Oil and natural gas are found in the Interior Plains of Canada because

A. they are associated with igneous rocks.

B. volcanoes produce oil and gas.

C. they are associated with certain kinds of sedimentary rock.

D. this is the oldest landform area of Canada.

CANADA : LAND AREA AND POPULATION

127. The province which had the greatest population in 1976 was

A. Quebec.

B. Ontario.

C. British Columbia.

D. Prince Edward Island.

128. In 1976 Canada's total mineral production was valued at approximately $15 000 000 000. Coal accounted for 4% of this total. The value of coal production in 1976 was

A. $ 600 000.

B. $ 6 000 000.

C. $ 60 000 000.

D. $ 600 000 000.

APPENDIX 2

TEACHER ATTITUDES

TO GEOGRAPHY

IINSTRUCTION

(Table 3)

Table 3
Teacher Attitudes to
Geography Instruction
All Participating Boards

Number of Teachers = 389

1. How important is it to teach environmental issues in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	0
Moderately Important	28
Very Important	72

2. How important it is for students to use computers in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	26
Moderately Important	56
Very Important	18

3. How important is it to balance the teaching of content and skills in a geography course on Canada?

Response Selections	Percent of Teachers
Not at All	1
Moderately Important	20
Very Important	79

Table 3 (Cont'd)
Teacher Attitudes to
Geography Instruction
All Participating Boards

4. How important is it to teach a sense of pride in our country in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	1
Moderately Important	29
Very Important	70

5. How important is it to teach from a global perspective in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	4
Moderately Important	58
Very Important	38

6. How important is it to teach problem-solving skills in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	1
Moderately Important	39
Very Important	60

7. How important is it to teach an understanding of multiculturalism in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	4
Moderately Important	53
Very Important	43

Table 3 (Cont'd)
Teacher Attitudes to
Geography Instruction
All Participating Boards

8. How important is it to teach air photograph interpretation in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	21
Moderately Important	66
Very Important	13

9. How important is it to make students aware of career opportunities associated with geography in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	9
Moderately Important	57
Very Important	34

10. How important is it to enhance the student's feeling of self-worth in a geography course on Canada ?

Response Selections	Percent of Teachers
Not at All	1
Moderately Important	29
Very Important	70

APPENDIX 3

ANALYSIS OF

OPPORTUNITY-TO-LEARN

(GENERAL LEVEL COURSE)

(Table 4)

Table 4
Analysis of Opportunity to Learn
General level Course
All Participating Boards

Description of Response Categories

A = Taught-new

B = Taught-reviewed

C = Not taught - previous course

D = Not taught - not in course

E = Not taught - no resources

F = Not taught - inappropriate

G = Not taught - no time available

H = Not taught - other reasons

Number of Teachers of General Level Course = 197

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
A. Local Community	1	67	21	4	3	1	1	2	3
	27	62	10	3	9	3	2	8	5
	53	80	9	2	5	1	1	2	2
	79	75	8	1	6	1	2	5	4
	105	67	9	1	8	0	7	2	7
B. Extent and Location of Canada	2	48	25	6	8	0	1	3	10
	28	53	20	6	8	0	3	5	6
	54	62	13	3	5	0	5	3	11
	80	74	14	2	5	0	2	1	2
	106	73	13	4	4	0	2	1	4
C. Canada's Physical Geography	3	81	7	2	3	1	4	1	2
	6	59	7	1	12	2	5	6	9
	7	71	20	1	2	0	1	1	5
	8	77	12	4	2	1	1	2	2
	29	90	7	0	1	1	1	1	1

Table 4 (Cont'd)
Analysis of Opportunity to Learn
General Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
C. Canada's Physical Geography (Cont'd)	32	47	5	2	17	1	10	11	8
	33	77	11	2	3	0	2	3	3
	34	78	10	4	4	1	1	3	2
	55	90	6	1	1	1	0	1	2
	58	47	5	1	18	1	8	9	12
	59	78	8	1	6	0	1	4	3
	60	69	12	3	8	0	1	3	6
	81	88	7	0	2	1	1	1	2
	84	59	8	0	10	1	7	8	8
	85	76	9	1	5	0	2	3	6
	86	78	7	1	5	0	2	4	4
	107	63	4	1	12	1	4	9	8
	110	60	7	0	11	0	5	8	10
	111	81	12	2	3	0	0	2	2
	112	44	6	0	17	0	13	9	11
D. Canada's Renewable and Non - Renewable Resources	11	52	5	2	12	9	5	7	10
	12	81	8	2	2	0	1	5	3
	37	77	7	0	2	0	2	8	5
	38	50	4	0	11	2	4	18	11

CANADIAN STUDIES GEOGRAPHY

Table 4 (Cont'd)
Analysis of Opportunity to Learn
General Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
D. Canada's Renewable and Non - Renewable Resources (Cont'd)	63	66	10	1	5	1	2	9	7
	64	46	6	1	12	0	2	22	12
	89	59	4	2	8	0	2	17	10
	90	74	8	1	6	0	2	6	4
	115	73	10	1	6	1	3	3	4
	116	88	5	1	2	0	0	4	2
E. Distrib-ution of Population in Canada	13	50	4	2	14	1	10	13	7
	16	43	8	2	17	0	7	12	11
	17	43	4	1	14	2	6	19	12
	39	40	2	1	18	1	12	16	11
	42	68	10	1	8	1	3	6	5
	43	53	3	1	12	1	6	18	8
	65	46	4	1	17	1	8	14	10
	68	65	7	0	7	0	3	9	10
	69	43	5	1	11	0	3	25	13
	91	45	2	1	14	1	11	15	12
	94	46	5	0	14	0	6	18	11
	95	33	7	0	14	0	5	29	13
	117	41	3	0	18	1	11	15	11
	120	78	9	0	7	1	0	4	3
	121	35	6	0	15	1	7	20	17

CANADIAN STUDIES GEOGRAPHY

Table 4 (Cont'd)
Analysis of Opportunity to Learn
General Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
F. Effects of Industrialization and Technological change on Transportation and Canadian Society	18	38	5	1	18	1	5	19	14
	21	31	4	1	22	1	11	20	12
	44	69	6	0	5	0	2	13	5
	47	57	7	1	11	0	10	7	8
	70	41	7	1	14	0	7	17	13
	73	53	5	0	10	0	5	17	10
	96	76	9	2	6	0	0	6	2
	99	51	6	1	9	0	7	16	11
	122	65	7	0	10	0	0	11	7
	125	41	5	1	15	1	9	17	12
G. Energy Supply in Canada	22	73	8	1	4	1	1	9	5
	48	66	4	1	7	1	3	15	5
	74	41	4	1	14	2	5	22	12
	100	77	3	0	4	0	1	5	7
	126	77	5	1	3	0	1	6	8
H. Topographic Maps and Air Photographs	4	74	18	2	3	1	0	2	2
	5	66	5	1	7	1	3	8	10
	9	55	8	1	15	0	4	6	12
	10	56	5	1	10	7	2	9	9
	14	65	6	2	9	1	4	7	7
	15	75	5	1	8	1	2	6	3

Table 4 (Cont'd)
Analysis of Opportunity to Learn
General Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
H.Topo-graphic Maps and Air Photographs (Cont'd)	30	82	13	1	2	0	0	1	2
	31	80	13	1	3	0	1	1	3
	35	80	5	0	8	1	1	4	2
	36	56	3	1	12	4	4	11	10
	40	31	3	1	18	6	11	13	18
	41	73	5	0	7	2	2	8	3
	56	77	4	0	8	1	3	4	4
	57	74	6	0	6	0	7	1	6
	61	79	4	0	8	1	3	4	2
	62	57	5	1	8	5	4	9	12
	66	65	4	0	11	4	4	5	8
	67	45	3	0	14	3	11	9	16
	82	66	3	0	13	0	5	7	6
	83	72	6	1	9	0	4	3	6
	87	81	6	0	4	1	3	3	3
	88	56	6	0	9	6	5	10	9
	92	54	5	0	14	5	5	9	8
	93	74	3	0	8	2	4	5	5
	108	81	4	0	8	1	2	4	2
	109	78	3	0	8	0	4	5	3
	113	67	6	0	8	1	4	8	6

Table 4 (Cont'd)
Analysis of Opportunity to Learn
General Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
H.Topographic Maps and Air Photographs	114	44	3	0	13	6	9	12	14
	118	57	4	0	12	3	6	7	11
	119	74	4	0	9	2	3	6	3
I.Constructing and Interpreting Charts, Graphs and Thematic Maps	19	51	9	1	13	1	11	9	7
	20	57	11	1	10	1	4	8	9
	23	35	3	3	19	2	10	16	13
	45	79	8	1	2	1	2	3	5
	46	47	5	2	12	2	7	14	10
	49	26	4	1	21	4	15	13	16
	71	62	4	0	7	1	10	8	8
	72	47	4	0	11	2	8	16	12
	75	67	7	1	6	0	2	9	8
	97	83	5	1	3	1	1	2	5
	98	68	6	1	6	1	7	6	7
	101	79	8	1	4	0	2	3	4
	123	62	5	1	7	1	6	6	11
	124	61	4	0	12	1	8	8	6
	127	90	5	0	2	0	1	2	1

Table 4 (Cont'd)
Analysis of Opportunity to Learn
General Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
J.Using Statistics in Geography	24	46	7	3	9	1	13	12	9
	50	57	6	2	8	1	11	9	7
	76	50	5	2	10	0	12	10	11
	102	46	12	1	11	0	11	8	10
	128	48	8	2	11	1	11	9	10

APPENDIX 4

ANALYSIS OF

OPPORTUNITY-TO-LEARN

(ADVANCED LEVEL COURSE)

(Table 5)

2.5
2.8
2.2
3.2
3.6
2.0
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100 mm
1.0
1.1
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3.2
3.6
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4.0
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890
1.0 mm
1.5 mm
2.0 mm
A5
2.0
2.2
2.5
2.8
3.2
3.6
4.0
2.0
2.2
2.5
2.8
3.2
3.6
4.0

Table 5
Analysis of Opportunity to Learn
Advanced Level Course
All Participating Boards

Description of Response Categories

A = Taught-new

B = Taught-reviewed

C = Not taught - previous course

D = Not taught - not in course

E = Not taught - no resources

F = Not taught - inappropriate

G = Not taught - no time available

H = Not taught - other reasons

Number of Teachers of Advanced Level Course = 273

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
A. Local Community	1	66	17	6	4	0	0	4	3
	27	68	8	2	4	3	0	9	6
	53	87	5	0	1	0	0	4	3
	79	80	7	1	2	1	0	5	4
	105	82	5	1	2	0	0	4	6
B. Extent and Location of Canada	2	53	23	6	7	0	2	2	7
	28	61	12	7	7	0	1	5	6
	54	66	11	2	2	0	2	5	12
	80	76	11	2	4	0	1	2	2
	106	80	7	4	2	0	1	3	4
C. Canada's Physical Geography	3	89	7	0	2	0	0	1	0
	6	75	5	1	6	0	2	8	3
	7	76	15	1	1	0	0	1	5
	8	83	12	1	1	0	1	0	1
	29	91	6	0	0	0	0	2	0

Table 5 (Cont'd)
Analysis of Opportunity to Learn
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
C. Canada's Physical Geography (Cont'd)	32	67	4	1	11	0	5	6	6
	33	79	9	1	2	0	1	4	4
	34	89	7	2	0	0	0	1	0
	55	96	2	1	0	0	0	0	0
	58	68	2	1	9	0	1	9	8
	59	79	9	0	1	0	1	7	2
	60	72	7	6	7	0	0	3	5
	81	93	5	0	1	0	0	0	1
	84	70	6	0	6	0	2	8	7
	85	76	8	0	3	0	1	5	6
	86	86	5	0	1	0	1	4	3
	107	74	3	0	9	0	0	7	7
	110	71	4	1	6	0	1	8	8
	111	82	12	0	1	0	0	4	1
	112	70	3	0	7	0	4	9	6
D. Canada's Renewable and Non - Renewable Resources	11	58	4	1	10	9	3	8	6
	12	86	8	0	1	0	0	3	1
	37	87	5	0	1	0	0	5	1
	38	57	3	0	11	1	2	12	14

Table 5 (Cont'd)
Analysis of Opportunity to Learn
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
D. Canada's Renewable and Non - Renewable Resources (Cont'd)	63	68	6	2	5	0	2	8	8
	64	58	3	0	9	0	1	16	13
	89	65	3	1	8	0	1	12	9
	90	74	5	1	4	0	0	8	6
	115	74	7	1	4	1	1	6	6
	116	90	4	0	1	0	0	2	2
E. Distrib-ution of Population in Canada	13	62	4	1	8	0	3	13	8
	16	52	9	4	12	0	4	10	10
	17	54	3	0	14	0	3	14	12
	39	56	3	1	12	0	4	13	12
	42	74	9	0	6	0	3	5	3
	43	70	3	0	7	1	3	10	7
	65	60	3	1	13	0	4	12	7
	68	75	5	0	3	0	1	6	10
	69	51	3	0	12	0	2	20	12
	91	58	2	2	11	0	4	14	10
	94	52	6	0	11	0	4	15	12
	95	44	4	0	12	0	3	23	14
	117	59	3	1	13	0	4	13	8
	120	84	4	1	3	0	1	3	3
	121	56	3	0	12	1	2	18	8

Table 5 (Cont'd)
Analysis of Opportunity to Learn
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
F.Effects of Industrial-ization and Technolog-ical change on Transport-ation and Canadian Society	18	46	4	1	11	0	5	19	14
	21	39	3	1	19	0	7	17	14
	44	75	4	0	4	0	0	10	7
	47	70	5	0	6	0	2	6	10
	70	42	5	0	15	0	6	15	17
	73	70	5	0	3	0	2	10	9
	96	80	8	0	4	0	0	4	3
	99	59	2	0	7	0	5	14	13
	122	71	4	0	7	0	0	10	8
	125	66	4	0	6	1	2	12	9
G.Energy Supply in Canada	22	77	8	2	3	0	0	4	4
	48	66	7	2	6	1	1	12	6
	74	47	2	0	9	0	2	27	13
	100	85	2	0	2	0	0	4	3
	126	87	4	1	1	0	0	4	3
H.Topo-graphic Maps and Air Photographs	4	78	16	0	1	0	0	3	1
	5	74	5	1	5	1	1	6	7
	9	62	6	0	8	0	6	8	9
	10	57	6	1	10	10	1	9	7
	14	72	7	0	8	4	1	5	3
	15	79	6	0	6	1	1	4	3

Table 5 (Cont'd)
Analysis of Opportunity to Learn
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
H.Topo-graphic Maps and Air Photographs (Cont'd)	30	83	11	1	1	0	0	3	1
	31	85	9	0	1	0	0	4	1
	35	88	3	0	3	0	0	4	1
	36	57	3	0	10	8	2	14	6
	40	33	3	0	15	9	8	16	16
	41	80	2	1	4	3	1	6	3
	56	87	2	1	3	1	0	6	1
	57	86	4	1	1	0	1	3	3
	61	88	2	1	4	0	1	3	1
	62	63	3	1	8	10	1	8	6
	66	68	4	0	7	5	0	8	7
	67	45	3	0	14	1	5	15	18
	82	78	2	1	5	0	2	6	6
	83	86	5	1	3	0	0	3	1
	87	84	7	0	2	0	2	4	1
	88	63	5	0	8	7	1	10	6
	92	62	2	1	9	5	1	11	8
	93	80	2	1	6	1	0	7	3
	108	84	6	1	3	0	0	5	1
	109	86	3	1	4	0	0	6	1
	113	75	5	0	6	1	3	8	3

Table 5 (Cont'd)
Analysis of Opportunity to Learn
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
H.Topographic Maps and Air Photographs	114	51	2	0	11	9	2	13	12
	118	65	4	0	9	5	0	9	8
	119	78	3	0	7	2	0	5	5
I.Constructing and Interpreting Charts, Graphs and Thematic Maps	19	67	7	1	6	1	2	10	7
	20	64	13	2	6	1	1	7	6
	23	48	3	1	16	0	1	18	13
	45	85	4	1	1	0	0	4	4
	46	47	4	2	11	1	3	16	15
	49	37	2	0	18	1	10	16	14
	71	72	6	0	3	1	1	9	7
	72	50	5	1	12	1	3	16	12
	75	74	4	1	4	1	1	8	6
	97	86	3	0	2	0	1	4	4
	98	77	5	1	3	1	1	5	7
	101	82	6	1	2	0	2	3	4
	123	73	4	0	4	0	3	5	10
	124	75	4	0	5	1	1	7	7
	127	90	4	0	1	0	1	2	1

Table 5 (Cont'd)
Analysis of Opportunity to Learn
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item	Percent of Teacher Responses — Response Categories							
		A	B	C	D	E	F	G	H
J.Using Statistics in Geography	24	59	7	1	10	0	3	11	8
	50	71	3	1	9	0	3	7	7
	76	65	4	1	9	0	3	9	9
	102	65	7	1	7	0	3	7	10
	128	58	7	1	8	0	6	8	11

APPENDIX 5

TEACHER USE

OF

INSTRUCTIONAL RESOURCES

(Table 6)

Table 6
Teacher Use of Instructional Resources
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Number of Teachers =	207	287
Set One		
-Films -Slides -Filmstrips		
Not Used At All	8	7
Rarely Used	27	30
Sometimes Used	46	47
Often Used	18	16
Almost Always Used	1	1
Set Two		
-Overhead Projector -Blackboard		
Not Used At All	8	4
Rarely Used	6	9
Sometimes Used	21	19
Often Used	38	35
Almost Always Used	27	33

CANADIAN STUDIES GEOGRAPHY

Table 6
Teacher Use of Instructional Resources
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Set Three		
-Television -VCR -Videotapes -TVO Series		
Not Used At All	18	15
Rarely Used	31	31
Sometimes Used	38	39
Often Used	11	14
Almost Always Used	1	1
Set Four		
-Computer -Printer -Software programs		
Not Used At All	84	78
Rarely Used	12	19
Sometimes Used	3	2
Often Used	1	1
Almost Always Used	0	0
Set Five		
-Standard Atlas -Economic Atlas -Thematic Atlas		
Not Used At All	5	3
Rarely Used	9	8
Sometimes Used	40	34
Often Used	40	41
Almost Always Used	7	14

CANADIAN STUDIES GEOGRAPHY

Table 6
Teacher Use of Instructional Resources
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Set Six		
-Student Texts -Supplementary Texts		
Not Used At All	6	4
Rarely Used	12	11
Sometimes Used	29	29
Often Used	36	39
Almost Always Used	16	17
Set Seven		
-Library Books -Journals -Magazines		
Not Used At All	29	21
Rarely Used	38	46
Sometimes Used	30	28
Often Used	3	5
Almost Always Used	1	1
Set Eight		
-Globes -Wall Maps -Thematic Maps -Models -Stream Table		
Not Used At All	10	6
Rarely Used	24	26
Sometimes Used	42	42
Often Used	22	22
Almost Always Used	2	4

Table 6
Teacher Use of Instructional Resources
All Participating Boards

CANADIAN STUDIES GEOGRAPHY

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Set Nine		
-Topographic Map Sheets -Air Photos -Topo/Air Photo Atlas		
Not Used At All	15	8
Rarely Used	38	43
Sometimes Used	36	38
Often Used	12	10
Almost Always Used	0	0
Set Ten		
-Guest Speakers -Field Interviews -Field Trips		
Not Used At All	64	57
Rarely Used	29	37
Sometimes Used	7	6
Often Used	0	0
Almost Always Used	0	0

APPENDIX 6

TEACHER USE

OF

INSTRUCTIONAL STRATEGIES

(Table 9)

CANADIAN STUDIES GEOGRAPHY

Table 9
Teacher Use of Instructional Strategies
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Number of Teachers =	207	287
Approach to Instruction - Type One		
-Teacher Directed		
Not Used At All	7	3
Rarely Used	6	4
Sometimes Used	23	25
Often Used	43	40
Almost Always Used	22	28
Approach to Instruction - Type Two		
-Student Directed		
Not Used At All	17	13
Rarely Used	29	25
Sometimes Used	37	42
Often Used	15	17
Almost Always Used	1	2

CANADIAN STUDIES GEOGRAPHY

Table 9 (Cont'd)
Teacher Use of Instructional Strategies
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Student Activities - Type Three		
-Notetaking -Textbook Assignments		
Not Used At All	7	3
Rarely Used	11	9
Sometimes Used	25	28
Often Used	34	34
Almost Always Used	23	25
Student Activities - Type Four		
-Project Work -Case Study		
Not Used At All	13	8
Rarely Used	24	20
Sometimes Used	45	47
Often Used	16	22
Almost Always Used	1	3
Student Activities - Type Five		
-Guided Discussion		
Not Used At All	10	8
Rarely Used	18	11
Sometimes Used	36	38
Often Used	25	29
Almost Always Used	11	14

Table 9 (Cont'd)
Teacher Use of Instructional Strategies
All Participating Boards

CANADIAN STUDIES GEOGRAPHY

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Student Activities - Type Six		
-Simulation -Roleplaying		
Not Used At All	57	56
Rarely Used	36	34
Sometimes Used	8	9
Often Used	0	1
Almost Always Used	0	0
Student Activities - Type Seven		
-Field Work -Lab Work -Charting -Graphing		
Not Used At All	13	9
Rarely Used	17	17
Sometimes Used	41	39
Often Used	23	28
Almost Always Used	6	7
Student Activities - Type Eight		
-Map Building -Map Reading		
Not Used At All	10	3
Rarely Used	3	5
Sometimes Used	31	34
Often Used	42	39
Almost Always Used	14	18

CANADIAN STUDIES GEOGRAPHY

Table 9 (Cont'd)
Teacher Use of Instructional Strategies
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Grouping Arrangements - Type Nine		
-Individual -Independent Study		
Not Used At All	24	18
Rarely Used	21	27
Sometimes Used	27	32
Often Used	21	13
Almost Always Used	7	9
Grouping Arrangements - Type Ten		
-Pairing		
Not Used At All	21	18
Rarely Used	30	29
Sometimes Used	37	36
Often Used	9	12
Almost Always Used	3	5

Table 9 (Cont'd)
Teacher Use of Instructional Strategies
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Grouping Arrangements - Type Eleven		
-Small Groups		
Not Used At All	27	22
Rarely Used	40	32
Sometimes Used	25	37
Often Used	6	7
Almost Always Used	2	2
Grouping Arrangements - Type Twelve		
-Whole Class		
Not Used At All	15	14
Rarely Used	8	7
Sometimes Used	24	23
Often Used	27	31
Almost Always Used	25	25

APPENDIX 7

TEACHER USE

OF

EVALUATION TECHNIQUES

(Table 12)

Table 12
Teacher Use of Evaluation Techniques
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Number of Teachers =	207	287
Evaluators - Type One		
-Self		
Not Used At All	50	51
Rarely Used	28	33
Sometimes Used	16	12
Often Used	3	2
Almost Always Used	3	2
Evaluators - Type Two		
-Peers		
Not Used At All	45	43
Rarely Used	32	32
Sometimes Used	19	21
Often Used	3	3
Almost Always Used	0	1

Table 12 (Cont'd)
Teacher Use of Evaluation Techniques
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Evaluators - Type Three		
-Teacher		
Not Used At All	8	5
Rarely Used	0	1
Sometimes Used	12	5
Often Used	28	31
Almost Always Used	52	59
Evaluators - Type Four		
-Others		
Not Used At All	87	91
Rarely Used	12	8
Sometimes Used	1	1
Often Used	0	0
Almost Always Used	0	0
Techniques - Type Five		
-Multiple Choices -Classification -Matching -True/False		
Not Used At All	11	9
Rarely Used	15	17
Sometimes Used	38	40
Often Used	26	21
Almost Always Used	10	13

Table 12 (Cont'd)
Teacher Use of Evaluation Techniques
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Techniques - Type Six		
-OAIP/BIMO		
Not Used At All	36	33
Rarely Used	26	29
Sometimes Used	23	22
Often Used	11	11
Almost Always Used	5	5
Techniques - Type Seven		
-Map/Airphoto Questions		
Not Used At All	11	6
Rarely Used	16	19
Sometimes Used	38	40
Often Used	31	29
Almost Always Used	4	6
Techniques - Type Eight		
-Short Answer -Restricted Response		
Not Used At All	9	4
Rarely Used	6	4
Sometimes Used	29	33
Often Used	42	39
Almost Always Used	14	19

Table 12 (Cont'd)
Teacher Use of Evaluation Techniques
All Participating Boards

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Techniques - Type Nine		
-Extended Answer -Essay -Free Response		
Not Used At All	22	7
Rarely Used	30	26
Sometimes Used	38	42
Often Used	9	21
Almost Always Used	2	5
Other Factors - Type Ten		
-Projects		
Not Used At All	18	15
Rarely Used	26	25
Sometimes Used	40	42
Often Used	14	15
Almost Always Used	3	3
Other Factors - Type Eleven		
-Longer Assignments		
Not Used At All	36	21
Rarely Used	35	38
Sometimes Used	23	31
Often Used	5	9
Almost Always Used	1	1

Table 12 (Cont'd)
Teacher Use of Evaluation Techniques
All Participating Boards

CANADIAN STUDIES GEOGRAPHY

Level of Use	Percent of Teachers	
	General Level Course	Advanced Level Course
Other Factors - Type Twelve		
-Notebooks		
Not Used At All	13	14
Rarely Used	12	15
Sometimes Used	30	30
Often Used	21	19
Almost Always Used	24	22
Other Factors - Type Thirteen		
-Participation		
Not Used At All	17	16
Rarely Used	12	14
Sometimes Used	24	28
Often Used	20	20
Almost Always Used	28	22
Other Factors - Type Fourteen		
-Attendance		
Not Used At All	43	44
Rarely Used	14	14
Sometimes Used	14	14
Often Used	9	10
Almost Always Used	20	18

APPENDIX 8

HOURS OF INSTRUCTION

BY

CONTENT AND SKILL AREA

(Table 15)

CANADIAN STUDIES GEOGRAPHY

Table 15
Hours of Instruction by Content and Skill Areas
All Participating Boards

	Hours of Instruction	Percent of Teachers	
		General Level Course	Advanced Level Course
A. Local Community	1 - 5	43	45
	6 - 10	33	36
	11 - 15	18	13
	16+	6	7
	Number of Teachers =	176	256
B. Extent and Location of Canada	1 - 5	57	72
	6 - 10	28	21
	11 - 15	13	6
	16+	3	1
	Number of Teachers =	192	276
C. Canada's Physical Geography	1 - 5	14	8
	6 - 10	22	24
	11 - 15	25	21
	16+	40	48
	Number of Teachers =	194	279
D. Canada's Renewable and Non-Renewable Resources	1 - 5	16	14
	6 - 10	23	26
	11 - 15	21	17
	16+	40	42
	Number of Teachers =	182	263

Table 15 (Cont'd)
Hours of Instruction by Content and Skill Areas
All Participating Boards

	Hours of Instruction	Percent of Teachers	
		General Level Course	Advanced Level Course
E. Distribution of Population in Canada	1 - 5	57	51
	6 - 10	27	34
	11 - 15	11	11
	16+	5	3
	Number of Teachers =	184	271
F. Effect of Industrialization and Technological Change on Transportation and Canadian Society	1 - 5	37	41
	6 - 10	37	32
	11 - 15	19	17
	16+	7	10
	Number of Teachers =	134	209
G. Energy Supply in Canada	1 - 5	33	33
	6 - 10	45	48
	11 - 15	18	16
	16+	4	3
	Number of Teachers =	167	246
H. Topographic Maps and Air Photographs	1 - 5	24	25
	6 - 10	43	44
	11 - 15	27	24
	16+	6	7
	Number of Teachers =	174	271

Table 15 (Cont'd)
Hours of Instruction by Content and Skill Areas
All Participating Boards

	Hours of Instruction	Percent of Teachers	
		General Level Course	Advanced Level Course
I. Constructing and Interpreting Charts, Graphs and Thematic Maps.	1 - 5	18	24
	6 - 10	47	45
	11 - 15	23	21
	16+	13	10
	Number of Teachers =	191	273
J. Using Statistics in Geography.	1 - 5	45	46
	6 - 10	37	38
	11 - 15	15	11
	16+	3	6
	Number of Teachers =	173	252

APPENDIX 9

ITEM ANALYSIS

(GENERAL LEVEL COURSE)

(Table 16)

CANADIAN STUDIES GEOGRAPHY

Table 16
Item Analysis
General Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
A Local Community	1	63	B	26	48	10	15	1112
	27	54	C	35	7	39	20	1079
	53	60	A	46	4	22	27	1069
	79	56	A	42	5	43	9	1012
	105	43	A	61	14	11	13	1023
B Extent and Location of Canada	2	54	A	71	7	17	5	1111
	28	55	B	10	73	10	7	1083
	54	46	C	22	22	44	12	1065
	80	60	A	66	12	9	13	1008
	106	46	B	34	36	23	7	1022
C Canada's Physical Geography	3	62	A	68	13	14	5	1115
	6	52	A	44	23	32	1	1113
	7	67	C	11	9	57	22	1117
	8	66	A	36	18	24	22	1113
	29	63	D	12	8	13	67	1085
	32	38	C	23	15	44	18	1070
	33	61	C	37	4	55	3	1086
	34	64	D	4	20	24	52	1086
	55	66	B	5	60	31	3	1076
	58	40	A	35	41	14	11	1072
	59	59	B	17	61	14	8	1072
	60	49	C	36	8	49	8	1070

CANADIAN STUDIES GEOGRAPHY

Table 16
Item Analysis
General Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
C Canada's Physical Geography (Cont'd)	81	63	C	15	11	64	9	1015
	84	49	B	21	39	39	1	1012
	85	59	B	12	51	26	11	1017
	86	57	A	41	14	13	33	1014
	107	46	A	54	15	17	13	1023
	110	46	A	36	27	36	2	1025
	111	65	D	14	11	23	52	1028
	112	36	B	35	35	18	13	1029
D Canada's Renewable and Non Renewable Resources	11	46	C	12	13	60	14	1112
	12	63	A	51	19	11	19	1113
	37	59	B	25	43	19	13	1083
	38	41	D	27	10	18	46	1077
	63	51	D	24	11	16	49	1069
	64	45	A	40	10	21	29	1069
	89	53	C	9	15	55	21	1013
	90	65	A	84	10	4	3	1015
	115	60	C	6	4	77	12	1031
	116	62	A	64	11	9	16	1029
E Distribution of Population in Canada	13	46	C	22	28	42	8	1101
	16	45	C	17	12	57	14	1103
	17	48	A	44	31	17	8	1100
	39	36	C	22	17	33	28	1077

CANADIAN STUDIES GEOGRAPHY

Table 16
Item Analysis
General Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
E Distribution of Population in Canada (Cont'd)	42	53	D	14	33	8	45	1081
	43	48	B	28	47	10	15	1072
	65	47	C	4	10	72	15	1070
	68	51	C	9	11	50	30	1068
	69	49	B	39	38	13	10	1070
	91	52	A	83	8	6	3	1015
	94	38	B	24	42	16	19	999
	95	37	D	50	12	18	20	1002
	117	40	D	14	18	22	46	1019
	120	67	A	69	21	7	3	1028
	121	38	C	20	28	28	25	1024
F Effects of Industrialization and Technological Change on Transportation and Canadian Society	18	41	D	21	31	19	29	1102
	21	50	C	7	14	71	8	1093
	44	57	B	5	32	55	8	1078
	47	45	C	30	19	39	11	1060
	70	51	D	7	6	26	61	1063
	73	45	C	13	25	26	36	1054
	96	66	C	8	6	82	4	1006
	99	44	D	8	26	10	56	995
	122	50	D	26	18	13	42	1024
	125	41	A	48	15	19	18	1003

CANADIAN STUDIES GEOGRAPHY

Table 16
Item Analysis
General Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
G Energy Supply in Canada	22	64	C	14	12	65	9	1091
	48	51	A	35	27	25	13	1065
	74	42	A	45	20	17	18	1057
	100	62	C	17	30	39	15	1001
	126	55	C	19	13	43	25	1006
H Topo-graphic Maps and Air Photo-graphs	4	60	C	25	11	56	8	1113
	5	48	D	14	21	19	46	1107
	9	48	C	10	16	61	13	1114
	10	59	A	73	11	6	11	1116
	14	58	D	15	20	10	56	1108
	15	57	A	56	28	9	8	1104
	30	67	D	9	11	19	60	1082
	31	56	A	34	13	26	27	1064
	35	60	A	62	9	13	16	1083
	36	51	C	13	18	63	6	1072
	40	35	A	53	17	15	15	1080
	41	57	C	13	8	72	6	1079
	56	52	C	31	24	35	10	1050
	57	47	A	32	17	7	44	1072
	61	61	C	3	9	81	7	1072

CANADIAN STUDIES GEOGRAPHY

Table 16
Item Analysis
General Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
H Topo-graphic Maps and Air Photo-graphs (Cont'd)	62	58	C	6	10	79	5	1076
	66	48	C	29	18	47	6	1062
	67	37	D	13	34	10	44	1062
	82	48	C	7	19	63	11	1000
	83	43	D	31	9	5	56	1015
	87	55	B	19	54	18	9	1014
	88	54	D	12	12	9	67	1016
	92	45	D	9	12	40	39	1011
	93	52	C	11	14	65	10	1003
	108	64	D	3	2	3	92	1027
	109	50	B	26	49	14	10	1023
	113	52	A	57	12	10	21	1024
	114	41	B	17	44	22	17	1024
	118	49	C	20	23	43	15	1025
	119	53	A	68	16	11	5	1025
I Constr-ucting and Inter-preting Charts and Thematic Maps	19	54	B	13	59	12	17	1100
	20	57	C	27	10	55	8	1091
	23	44	C	43	14	28	15	1089
	45	63	A	51	20	26	3	1076
	46	54	C	11	8	69	12	1070
	49	29	A	27	10	38	25	1058

CANADIAN STUDIES GEOGRAPHY

Table 16
Item Analysis
General Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
I Constructing and Interpreting Charts and Thematic Maps (Cont'd)	71	56	A	78	8	7	7	1065
	72	49	C	10	14	62	14	1056
	75	57	B	16	54	20	10	1051
	97	66	B	13	69	8	11	1004
	98	59	C	10	11	67	13	998
	101	67	C	10	19	68	3	1003
	123	44	A	44	25	15	16	1009
	124	47	A	44	25	22	8	1001
	127	72	B	9	75	11	5	1001
J Using Statistics in Geography	24	33	C	9	26	51	14	1070
	50	36	C	12	24	50	13	1058
	76	35	B	12	42	30	16	1046
	102	34	B	28	40	22	10	993
	128	36	D	22	29	32	18	984

APPENDIX 10

ITEM ANALYSIS

(ADVANCED LEVEL COURSE)

(Table 17)

CANADIAN STUDIES GEOGRAPHY

Table 17
Item Analysis
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
A Local Community	1	72	B	26	57	4	12	2335
	27	67	C	34	2	46	17	2307
	53	72	A	66	2	17	15	2236
	79	69	A	56	1	37	6	2169
	105	62	A	74	10	7	9	2108
B Extent and Location of Canada	2	69	A	81	4	13	2	2333
	28	71	B	3	90	3	4	2310
	54	60	C	13	13	56	18	2228
	80	75	A	86	4	2	8	2168
	106	62	B	31	40	23	6	2108
C Canada's Physical Geography	3	75	A	78	10	9	4	2335
	6	71	A	60	14	26	0	2336
	7	75	C	4	3	77	17	2341
	8	79	A	61	8	14	18	2337
	29	78	D	6	3	7	84	2304
	32	56	C	19	11	48	21	2289
	33	72	C	23	1	74	1	2307
	34	78	D	2	11	13	73	2310
	55	76	B	3	72	22	2	2240
	58	57	A	38	32	17	13	2226
	59	71	B	7	83	5	4	2235
	60	61	C	34	6	57	3	2240

CANADIAN STUDIES GEOGRAPHY

Table 17
Item Analysis
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
C Canada's Physical Geography (Cont'd)	81	78	C	6	6	80	8	2173
	84	65	B	12	54	33	1	2172
	85	70	B	10	68	17	5	2165
	86	71	A	59	9	7	25	2171
	107	63	A	64	15	13	8	2107
	110	64	A	43	23	34	0	2117
	111	78	D	9	4	19	68	2119
	112	54	B	37	42	7	14	2112
D Canada's Renewable and Non Renewable Resources	11	61	C	7	7	73	13	2330
	12	76	A	71	10	4	15	2336
	37	75	B	14	64	14	8	2308
	38	57	D	19	8	16	57	2305
	63	63	D	16	11	13	60	2240
	64	62	A	49	5	19	28	2232
	89	67	C	8	14	66	13	2164
	90	76	A	93	5	1	1	2172
	115	73	C	2	1	90	7	2121
	116	75	A	76	8	6	10	2115
E Distribution of Population in Canada	13	64	C	21	20	54	5	2329
	16	61	C	13	6	75	7	2332
	17	61	A	60	22	16	3	2336
	39	58	C	13	10	44	33	2303

CANADIAN STUDIES GEOGRAPHY

Table 17
Item Analysis
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
E Distribution of Population in Canada (Cont'd)	42	70	D	10	20	4	65	2305
	43	65	B	16	71	6	7	2302
	65	64	C	1	6	80	12	2233
	68	65	C	4	5	65	26	2236
	69	64	B	27	53	10	10	2234
	91	68	A	92	4	2	2	2171
	94	54	B	25	47	14	14	2153
	95	55	D	50	8	16	26	2169
	117	58	D	10	11	21	58	2110
	120	76	A	83	11	4	1	2118
	121	55	C	17	15	50	18	2114
F Effects of Industrialization and Technological Change on Transportation and Canadian Society	18	58	D	10	34	12	44	2333
	21	63	C	2	6	88	3	2326
	44	68	B	3	41	50	5	2305
	47	63	C	21	9	64	6	2297
	70	65	D	3	5	19	72	2237
	73	67	C	12	16	45	27	2232
	96	80	C	4	2	92	2	2167
	99	60	D	3	20	4	73	2163
	122	65	D	22	15	5	59	2119
	125	64	A	66	5	13	16	2104

CANADIAN STUDIES GEOGRAPHY

Table 17
Item Analysis
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
G Energy Supply in Canada	22	77	C	6	8	79	6	2330
	48	67	A	50	21	17	12	2297
	74	59	A	58	13	9	20	2226
	100	74	C	10	28	53	10	2158
	126	71	C	19	7	58	17	2099
H Topo-graphic Maps and Air Photo-graphs	4	76	C	15	8	73	4	2327
	5	65	D	13	14	12	61	2332
	9	63	C	7	9	75	9	2337
	10	69	A	84	8	2	6	2340
	14	72	D	9	9	4	78	2332
	15	69	A	68	22	7	3	2338
	30	78	D	6	8	10	76	2306
	31	72	A	55	10	17	18	2297
	35	76	A	79	6	5	9	2303
	36	63	C	9	12	77	3	2296
	40	51	A	63	12	11	14	2301
	41	70	C	7	4	85	4	2303
	56	69	C	19	14	60	7	2219
	57	65	A	49	11	3	36	2234
	61	75	C	1	4	93	2	2240

CANADIAN STUDIES GEOGRAPHY

Table 17
Item Analysis
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
H Topo-graphic Maps and Air Photo-graphs (Cont'd)	62	69	C	4	7	88	2	2240
	66	65	C	22	11	64	3	2228
	67	51	D	15	29	5	51	2229
	82	67	C	4	15	69	12	2141
	83	64	D	17	3	2	78	2170
	87	69	B	16	60	17	7	2161
	88	67	D	6	5	5	84	2172
	92	58	D	7	6	35	51	2169
	93	67	C	7	5	82	5	2168
	108	74	D	2	2	3	94	2118
	109	66	B	21	62	9	8	2116
	113	64	A	66	10	6	18	2114
	114	56	B	15	53	17	16	2112
	118	62	C	12	17	58	14	2107
	119	65	A	74	16	7	3	2114
I Constr-ucting and Inter-preting Charts and Thematic Maps	19	70	B	9	73	5	12	2334
	20	72	C	22	6	68	4	2329
	23	61	C	37	8	43	12	2321
	45	75	A	69	10	19	2	2305
	46	67	C	4	3	86	6	2301
	49	46	A	36	5	44	15	2284

CANADIAN STUDIES GEOGRAPHY

Table 17
Item Analysis
Advanced Level Course
All Participating Boards

Content/ Skill Area	Item #	Predicted % Student Achievement	Correct Answer	Student Choices (%)				Number of Responses
				A	B	C	D	
I Constructing and Interpreting Charts and Thematic Maps (Cont'd)	71	71	A	87	6	3	4	2238
	72	65	C	5	7	80	8	2226
	75	71	B	11	71	10	7	2225
	97	77	B	5	86	3	5	2167
	98	73	C	5	6	83	6	2163
	101	79	C	4	9	85	1	2166
	123	61	A	70	11	8	11	2104
	124	65	A	66	18	11	5	2101
	127	81	B	6	85	5	3	2106
J Using Statistics in Geography	24	57	C	4	15	70	11	2306
	50	58	C	8	14	68	11	2288
	76	57	B	10	61	20	8	2221
	102	59	B	16	52	18	14	2154
	128	58	D	20	23	26	31	2088

APPENDIX 11

ITEM DATA

(GENERAL LEVEL COURSE)

(Table 18)

CANADIAN STUDIES GEOGRAPHY

Table 18
Item Data
General Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
A	1	Determining distance between cities	48	84	63	3
	27	Locating land use areas	38	68	54	2
	53	Depicting relief on maps	46	85	60	2
	79	Depicting low/poorly drained areas	43	79	56	2
	105	Choosing a map for landforms	61	71	43	4
B	2	Boundary features	71	70	54	5
	28	Neighbouring nations	73	69	55	4
	54	Parallels of latitude as boundaries	43	71	46	3
	80	Direction using polar projection	66	84	60	4
	106	Identification of parallel	36	82	46	2
C	3	Cross section - folding	68	84	62	4
	6	Precipitation - Winnipeg/Edmonton	43	63	52	3
	7	Definition of natural vegetation	57	86	67	3
	8	Orographic Precipitation	36	84	66	1
	29	Cross section - Appalachians	66	92	63	4
	32	Weather - low pressure system	43	49	38	3
	33	Deciduous forest - tree types	56	83	61	3
	34	Rain shadow	52	83	64	3
	55	Cross section - sedimentary rock	61	90	66	3
	58	Weather - high pressure system	34	49	40	2
	59	Mixed Forest description	60	81	59	3

** See Last Page Of Table 18 For Description Of Column Headings

Table 18
Item Data
General Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
C	60	Summer/winter comparison	48	76	49	3
	81	Cross section - Canadian Shield	64	90	63	3
	84	Precipitation - Calgary/Medicine Hat	39	63	49	3
	85	Definition of tree line	51	80	59	3
	86	Natural vegetation - prairies	41	81	57	2
	107	Cross section - alpine glaciation	54	63	46	4
	110	Precipitation areas in prairies	35	63	46	3
	111	Coniferous vegetation	52	88	65	2
	112	Relating climate and vegetation	34	47	36	3
D	11	Interpretation - forest/rock patches	60	53	46	4
	12	Natural ressources - prairies	51	83	63	2
	37	Relating oil to physical features	43	79	59	2
	38	Interpretation - agricultural areas	45	51	41	3
	63	Renewable resources	49	72	51	3
	64	Raw materials for steel industry	39	49	45	3
	89	Location of natural gas	54	59	53	4
	90	Potatoes - location in Canada	83	77	65	5
	115	Potatoes - Manitoba	77	79	60	5
	116	Relating metals to physical features	63	87	62	4

** See Last Page Of Table 18 For Description of Column Headings

Table 18
Item Data
General Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
E	13	Prairie township - size	42	51	46	3
	16	Land use patterns and rivers	56	48	45	3
	17	Use of urban land	43	44	48	2
	39	Prairie township - families	33	39	36	3
	42	Size of largest cities	44	73	53	3
	43	Areas of rapid growth	46	53	48	3
	65	Prairie township - land ownership	71	47	47	4
	68	High population concentration	49	68	51	3
	69	Automobile production	37	45	49	3
	91	Prairie township - railway lands	83	44	52	5
	94	Low population density	41	48	38	3
	95	Steel production	20	37	37	2
	117	Prairie township - appropriate use	45	42	40	3
	120	Provincial population	69	82	67	3
	121	Population factors - Maritimes	28	38	38	2
F	18	Rail lines in the Prairies	28	41	41	2
	21	Primary purpose of high-rise apartments	70	33	50	4
	44	Transportation - wheat for export	32	71	57	1
	47	Concept of region	39	61	45	2
	70	Transportation - newspapers to Florida	60	45	51	4

** See Last Page Of Table 18 For Description Of Column Headings

Table 18
Item Data
General Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
F	73	Concept of industrial heartland	25	55	45	1
	96	Identifying most important waterway	81	81	66	5
	99	Concept of site	55	54	44	3
	122	Use of water	42	68	50	2
	125	Identifying a manufacturing region	46	43	41	3
G	22	Water as a renewable resource	64	76	64	3
	48	Non-renewable sources of energy	35	65	51	2
	74	Concerns re pipeline construction	45	43	42	3
	100	Relating fossil fuels/sedimentary rock	38	78	62	1
	126	Location of oil and natural gas	42	78	55	2
H	4	Direction (NW) - map	56	87	60	3
	5	Identifying land use -map	45	68	48	3
	9	Relating site to construction	61	59	48	4
	10	Identifying land use - photo	73	57	59	5
	14	Locating features - map	55	67	58	3
	15	Relating settlement to site	55	75	57	3
	30	Direction of travel - map	60	90	67	3
	31	Using scale - map	33	88	56	1
	35	Interpreting close contours	63	81	60	3
	36	Land use - railway yard	62	56	51	3
	40	Photo interpretation	52	31	35	4
	41	Land use - economic activity	72	74	57	4

** See Last Page Of Table 18 For Description Of Column Headings

Table 18
Item Data
General Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
H	56	Reading contour interval	34	77	52	2
	57	Expression of scale	32	76	47	2
	61	Contours on flat land	81	79	61	5
	62	Identifying water on air photo	78	58	58	5
	66	Relating photo to a map	47	65	48	3
	67	Reading symbols on maps	43	45	37	3
	82	Elevation of bench mark	62	66	48	4
	83	Large scale/small scale	55	74	43	3
	87	Measuring distance	54	83	55	3
	88	Photo interpretation - land use	67	58	54	4
	92	Map/photo relationships - land use	39	56	45	2
	93	Establish hypothesis - fire lookout	65	73	52	4
	108	Reading symbol - bridge	91	80	64	5
	109	Contour interpretation	49	77	50	3
	113	Relating settlement to site (swamp)	57	69	52	3
	114	Photo interpretation - agriculture	44	44	41	3
	118	Map/photo relationship - land use	42	58	49	2
	119	Map interpretation - land use	68	73	53	4

** See Last Page Of Table 18 For Description Of Column Headings

Table 18
Item Data
General Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
I	19	Soil types - Hudson Bay shore	58	57	54	3
	20	Water flow -Great Lakes	54	64	57	3
	23	Reading population graph (15 - 19 years)	28	35	44	2
	45	Forest types - southern Canada	51	83	63	2
	46	Reading circle graphs - ports	68	50	54	4
	49	Interpreting line graphs - daylight	26	28	29	3
	71	Soil types - Ontario and Québec	77	63	56	4
	72	Reading circle graphs - goods handled	61	48	49	4
	75	Reading maps - sesquence of cities	53	70	57	3
	97	Grasslands in Canada	68	84	66	3
	98	Relating maps of soil and vegetation	66	70	59	3
	101	Interpreting pie graphs - fruit	67	82	67	3
	123	Map reading and rank ordering	44	63	44	3
	124	Relating soil zones to forest zones	43	62	47	3
	127	Reading chart - population	73	90	72	3
J	24	Determining population from density	49	50	33	3
	50	Determining population density	49	58	36	3
	76	Determining area from density	42	52	35	3
	102	Population expressed in percent	39	55	34	3
	128	Using percent to determine values	17	53	36	1

P Value - Percent Correct Value (%)
OTL - Opportunity-to-Learn (%)
TPC - Teacher Prediction Correct (%)
IPR - Interpretation Panel Rating:
1-Weak 2-Marginal 3-Satisfactory 4-Strong 5-Superior

APPENDIX 12

ITEM DATA

(ADVANCED LEVEL COURSE)

(Table 19)

CANADIAN STUDIES GEOGRAPHY

Table 19
Item Data
Advanced Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
A	1	Determining distance between cities	57	79	72	3
	27	Locating land use areas	46	72	67	2
	53	Depicting relief on maps	66	87	72	3
	79	Depicting low/poorly drained areas	56	82	69	2
	105	Choosing a map for landforms	74	82	62	4
B	2	Boundary features	81	72	69	5
	28	Neighbouring nations	90	70	71	5
	54	Parallels of latitude as boundaries	56	74	60	3
	80	Direction using polar projection	85	83	75	5
	106	Identification of parallel	40	82	62	1
C	3	Cross section - folding	78	91	75	4
	6	Precipitation - Winnipeg/Edmonton	60	76	71	3
	7	Definition of natural vegetation	77	86	75	4
	8	Orographic Precipitation	61	90	79	2
	29	Cross section - Appalachians	84	93	78	4
	32	Weather - low pressure system	48	68	56	2
	33	Deciduous forest - tree types	73	84	72	4
	34	Rain shadow	74	91	78	4
	55	Cross section - sedimentary rock	72	93	76	3
	58	Weather - high pressure system	38	67	57	1
	59	Mixed Forest description	83	84	71	5

** See Last Page Of Table 19 For Description Of Column Headings

Table 19
Item Data
Advanced Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
C	60	Summer/winter comparison	57	75	1	3
	81	Cross section - Canadian Shield	80	93	78	14
	84	Precipitation - Calgary/Medicine Hat	54	72	65	2
	85	Definition of tree line	67	80	70	3
	86	Natural vegetation - prairies	59	86	71	2
	107	Cross section - alpine glaciation	64	72	63	3
	110	Precipitation areas in prairies	42	72	64	2
	111	Coniferous vegetation	68	89	78	2
	112	Relating climate and vegetation	42	69	54	2
D	11	Interpretation - forest/rock patches	73	59	61	4
	12	Natural resources - prairies	70	89	76	3
	37	Relating oil to physical features	64	87	75	2
	38	Interpretation - agricultural areas	57	57	57	3
	63	Renewable resources	60	70	63	3
	64	Raw materials for steel industry	49	58	62	2
	89	Location of natural gas	65	65	67	3
	90	Potatoes - location in Canada	93	75	76	5
	115	Potatoes - Manitoba	90	76	73	5
	116	Relating metals to physical features	76	89	75	4

** See Last Page Of Table 19 For Description Of Column Headings

CANADIAN STUDIES GEOGRAPHY

Table 19
Item Data
Advanced Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
E	13	Prairie township - size	54	63	64	3
	16	Land use patterns and rivers	74	57	61	4
	17	Use of urban land	59	54	61	3
	39	Prairie township - families	44	55	58	2
	42	Size of largest cities	65	79	70	3
	43	Areas of rapid growth	71	69	65	4
	65	Prairie township - land ownership	80	60	64	4
	68	High population concentration	65	76	65	3
	69	Automobile production	53	52	64	3
	91	Prairie township - railway lands	92	57	68	5
	94	Low population density	46	55	54	3
	95	Steel production	26	46	55	1
	117	Prairie township - appropriate use	58	59	58	3
	120	Provincial population	83	84	76	4
	121	Population factors - Maritimes	50	56	55	3
F	18	Rail lines in the Prairies	43	47	58	2
	21	Primary purpose of high-rise apartments	88	40	63	5
	44	Transportation - wheat for export	41	75	68	1
	47	Concept of region	64	71	63	3
	70	Transportation - newspapers to Florida	72	45	65	4

** See Last Page Of Table 19 For Description Of Column Headings

Table 19
Item Data
Advanced Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
F	73	Concept of industrial heartland	45	72	67	2
	96	Identifying most important waterway	92	84	80	5
	99	Concept of site	72	58	60	4
	122	Use of water transportation	59	71	65	3
	125	Identifying a manufacturing region	65	66	64	3
G	22	Water as a renewable resource	79	81	77	4
	48	Non-renewable sources of energy	49	69	67	2
	74	Concerns re pipeline construction	58	46	59	3
	100	Relating fossil fuels/sedimentary rock	52	86	74	1
	126	Location of oil and natural gas	57	86	71	2
H	4	Direction (NW) - map	73	90	76	4
	5	Identifying land use - map	61	75	65	3
	9	Relating site to construction	75	64	63	4
	10	Identifying land use - photo	84	59	69	4
	14	Locating features - map	77	75	72	4
	15	Relating settlement to site	68	81	69	3
	30	Direction of travel - map	75	90	78	4
	31	Using scale - map	54	89	72	2
	35	Interpreting close contours	79	86	76	4
	36	Land use - railway yard	76	57	63	4
	40	Photo interpretation	63	34	51	4
	41	Land use - economic activity	85	78	70	5

** See Last Page Of Table 19 For Description Of Column Headings

CANADIAN STUDIES GEOGRAPHY

Table 19
Item Data
Advanced Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
H	56	Reading contour interval	59	85	69	3
	57	Expression of scale	49	85	65	2
	61	Contours on flat land	93	86	75	5
	62	Identifying water on air photo	88	62	69	5
	66	Relating photo to a map	64	68	65	3
	67	Reading symbols on maps	50	45	51	3
	82	Elevation of bench mark	68	76	67	3
	83	Large scale/small scale	77	87	64	4
	87	Measuring distance	60	87	69	2
	88	Photo interpretation - land use	84	64	67	4
	92	Map/photo relationships - land use	51	61	58	3
	93	Establish hypothesis - fire lookout	82	78	67	4
	108	Reading symbol - bridge	93	85	74	5
	109	Contour interpretation	61	84	66	3
	113	Relating settlement to site (swamp)	66	75	64	3
	114	Photo interpretation - agriculture	53	51	56	3
	118	Map/photo relationship - land use	57	65	62	3
	119	Map interpretation - land use	73	77	65	4

** See Last Page Of Table 19 For Description Of Column Headings

CANADIAN STUDIES GEOGRAPHY

Table 19
Item Data
Advanced Level Course
All Participating Boards

C/S Area and Item		Short Description	P Value	OTL	TPC	IPR
I	19	Soil types - Hudson Bay shore	73	70	70	3
	20	Water flow - Great Lakes	68	73	72	3
	23	Reading population graph (15 - 19 years)	43	48	61	2
	45	Forest types - southern Canada	69	85	75	3
	46	Reading circle graphs - ports	85	49	67	5
	49	Interpreting line graphs - daylight	35	36	46	2
	71	Soil types - Ontario and Québec	87	74	71	5
	72	Reading circle graphs - goods handled	79	53	65	4
	75	Reading maps - sesquence of cities	71	74	71	4
	97	Grasslands in Canada	86	84	77	4
	98	Relating maps of soil and vegetation	83	78	73	4
	101	Interpreting pie graphs - fruit	85	83	79	4
	123	Map reading and rank ordering	69	73	61	4
	124	Relating soil zones to forest zones	65	75	65	3
	127	Reading chart - population	85	90	81	5
J	24	Determining population from density	69	62	57	3
	50	Determining population density	67	69	58	3
	76	Determining area from density	61	66	57	3
	102	Population expressed in percent	52	69	59	2
	128	Using percent to determine values	30	61	58	1

P Value - Percent Correct Value (%)
OTL - Opportunity-to-Learn (%)
TPC - Teacher Prediction Correct (%)
IPR - Interpretation Panel Rating:
1-Weak 2-Marginal 3-Satisfactory 4-Strong 5-Superior

APPENDIX 13

STUDENT ATTITUDES

TO

THE GEOGRAPHY PROGRAM

(Table 21)

CANADIAN STUDIES GEOGRAPHY

Table 21
Student Attitudes to the Geography Program
All Participating Boards

Responses	Percent of Students	
	General Level Course	Advanced Level Course
1. As a result of the Canada geography course my ability to solve problems associated with geography has increased.		
Not At All	9	7
Some	60	56
A Lot	31	37
Number of Students =	1078	2315
2. As a result of the Canada geography course my understanding of Canada's relations with other nations has increased.		
Not At All	13	12
Some	52	54
A Lot	35	34
Number of Students =	1076	2316
3. As a result of the Canada geography course my understanding of different cultures in Canada has increased.		
Not At All	9	8
Some	52	56
A Lot	38	36
Number of Students =	1060	2295

Table 21 (Cont'd)
Student Attitudes to the Geography Program
All Participating Boards

Responses	Percent of Students	
	General Level Course	Advanced Level Course
4. As a result of the Canada geography course my sense of pride in Canada has increased.		
Not At All	13	12
Some	50	52
A Lot	36	35
Number of Students =	1056	2290
5. As a result of the Canada geography course my knowledge of Canada has increased.		
Not At All	8	4
Some	53	42
A Lot	40	54
Number of Students =	1051	2226
6. As a result of the Canada geography course my understanding of the importance of maps to society has increased.		
Not At All	10	7
Some	49	52
A Lot	40	42
Number of Students =	1050	2225
7. As a result of the Canada geography course my understanding of the importance of computers in society has increased.		
Not At All	23	36
Some	39	38
A Lot	38	26·
Number of Students =	995	2160

Table 21 (Cont'd)
Student Attitudes to the Geography Program
All Participating Boards

Responses	Percent of Students	
	General Level Course	Advanced Level Course
8. As a result of the Canada geography course my interest in job opportunities associated with geography has increased.		
Not At All	33	37
Some	49	49
A Lot	18	14
Number of Students =	996	2158
9. As a result of the Canada geography course my understanding of environmental issues has increased.		
Not At All	11	6
Some	54	49
A Lot	35	45
Number of Students =	994	2100
10. As a result of the Canada geography course my interest in taking another course in geography has increased.		
Not At All	32	33
Some	49	49
A Lot	19	18
Number of Students =	989	2098

APPENDIX 14

INDIVIDUAL S INVOLVED

IN

THE REVIEW

Appendix 14

14.1 Concept and Skill Instruction Rating Team

Mr. Herb. A. Augustine,
Northeastern Regional Office,
Ministry of Education

Ms. Nancy Maynes,
Lincoln County Board of Education

Mr. Bill O'Hallarn,
East Parry Sound Board of Education

Mr. Don Revell,
Lincoln County Board of Education

14.2 Course of Study Rating Team

Mr. John Borst,
Northeastern Regional Office,
Ministry of Education,
now
York Region Roman Catholic Separate
School Board

Mr. Ormond Carnegie,
Nipissing Board of Education

Mr. Donald Dore,
Nipissing District Roman Catholic
Separate School Board

Mr. Victor Huebert,
Essex County Board of Education

Mr. Frank Marchese,
Country Day Private School

14.3 Learning Assessment Unit Program Implementation and Review Branch, Ministry of Education

Mr. William P. Lipischak, Director,
Program Implementation and Review Branch

Mr. Ron Cussons, Education Officer

Mr. Francois Lavictoire, Education Officer

Mr. Robert Morrow, Jr., Education Officer

Dr. Dennis Raphael, Program Manager

Ms. Rachel Baril, Administrative Assistant

Ms. Denise Weizer, Administrative Assistant

14.4 Provincial Interpretation Panel

Mr. Robert Morrow, Jr.,Chairman

Mr. Herb A. Augustine,
Northeastern Regional Office,
Ministry of Education

Mr. Colin Ball,
Faculties of Education

Ms. Donna Barnuk,
Lakehead Board of Education

Mr. John Bearcroft,
Ontario Geography Consultants Association

Ms. Michelle Belanger,
Prescott Russell Board of Education

Mr. Ron Cussons,
Program Co-ordinator

Ms. Rosemarie Culver,
Middlesex Roman Catholic Separate
School Board

Mr. Jim Forrester,
Supervisory Officers

Mr. Francois Lavictoire,
Program Co-ordinator

Ms. Alice MacIntyre,
Ontario School Trustees Council

Mr. Dick Mansfield,
Ontario Secondary School Principals' Council

Mr. John McCutcheon,
Ontario Association for Geographic and
Environmental Education

Dr. Dennis Raphael,
Program Manager

Mr. Michel Robineau,
Northeastern Regional Office,
Ministry of Education

Mr. Len Swatridge,
Centre for Secondary and Adult Education,
Ministry of Education

Dr. Ross Traub,
Technical Advisor

Ms. Claire Trepanier,
Subject Advisor

Mr.JohnWashington,
Ontario Teachers' Federation

14.5 Provincial Consultative Committee

Mr. Dick Baine,
Faculty of Education,
University of Toronto
(since retired)

Mr.Ron Cussons,
Program Implementation and Review Branch,
Ministry of Education

Mr. Jim Forrester,
Hamilton Board of Eduction
(OAEAO)

Mr.Jim Gilliland
Scarborough Board of Education (OGCA)

Mr. Owen Jackson,
Hamilton Board of Education
(Association of Education
Research Officers of Ontario)

Mr. Francois Lavictoire,
Program Implementation and
Review Branch, Ministry of Education

Ms. Alice MacIntyre,
West Parry Sound Board of Education
(OSTC)

Mr. Jack Malcolm,
Northwestern Regional Office,
Ministry of Education

Mr. John McCutcheon
Hamilton Board of Education
(representing OAGEE)

Mr. Robert Morrow, Jr.
Wentworth County Board ofEducation
(Subject Advisor)
now with the Program Implementation
and Review Branch,
Ministry of Education

Mr. Len Swatridge,
Centre for Secondary and Adult Education,
Ministry of Education

Mr. Jean Tanguay,
Nipissing Board of Education

Dr. Ross Traub,
Ontario Institute for Studies in Education,
(technical advisor)

Mr. John Washington,
Halton County Board of Education,
(OTF)

14.6 Information Technology Systems Branch

Fanny Chang,
Systems Analyst

Hannan Chervinsky,
Senior Consultant

Eoin Gomes,
Systems Analyst

David Nemirosky,
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APPENDIX 15

LIST OF TABLES, GRAPHS AND CHARTS

(Figure 1)

Figure 1
List of Tables, Graphs, and Charts

	Title	Level Available		
		School	Board	All Boards
Graph 1	Overview of Opportunity-to-Learn	X	X	X
Graph 2	Opportunity-to-Learn by Content and Skill Areas (general level course)	X	X	X
Graph 3	Opportunity-to-Learn by Content and Skill Areas (advanced level course)	X	X	X
Graph 4	Emphasis on Instructional Resources			X
Graph 5	Emphasis on Instructional Strategies			X
Graph 6	Emphasis on Evaluation Techniques			X
Graph 7	Overview of Student Achievement	X	X	X
Graph 8	Student Achievement by Content and Skill Areas (general level course)	X	X	X
Graph 9	Student Achievement by Content and Skill Areas (advanced level course)	X	X	X
Graph 10	Student Achievement by School Organization			X
Graph 11	Student Achievement by Gender			X
Graph 12	Correlations of Student Achievement with Opportunity-to-Learn			X
Graph 13	Correlations of Student Achievement with Use of Instructional Resources			X

Figure 1 (Cont'd)
List of Tables, Graphs, and Charts

	Title	Level Available		
		School	Board	All Boards
Graph 14	Correlations of Student Achievement with Use of Instructional Strategies			X
Graph 15	Correlations of Student Achievement with Use of Evaluation Techniques			X
Graph 16	Correlations of Student Achievement with Teacher Predicted Achievement			X
Chart 1	Variation in Average School Opportunity-to-Learn by Content and Skill Areas (general level course)			X
Chart 2	Variation in Average School Opportunity-to-Learn by Content and Skill Areas (advanced level course)			X
Chart 3	Variation in Average Number of Hours of Instruction by Content and Skill Areas (general level course)			X
Chart 4	Variation in Average Number of Hours of Instruction by Content and Skill Areas (advanced level course)			X
Chart 5	Variation in Average School Achievement by Content and Skill Areas (general level course)			X
Chart 6	Variation in Average School Achievement by Content and Skill Areas (advanced level course)			X

Figure 1 (Cont'd)
List of Tables, Graphs, and Charts

	Title	Level Available		
		School	Board	All Boards
Table 1	Participation Rates	X	X	X
Table 2	Course of Study Ratings			X
Table 3	Teacher Attitudes to Geography Instruction	X	X	X
Table 4	Analysis of Opportunity-to-Learn (general level course)		X	X
Table 5	Analysis of Opportunity-to-Learn (advanced level course)		X	X
Table 6	Teacher Use of Instructional Resources		X	X
Table 7	Mean Use of Instructional Resources by Content and Skill Areas (general level course)			X
Table 8	Mean Use of Instructional Resources by Content and Skill Areas (advanced level course)			X
Table 9	Teacher Use of Instructional Strategies		X	X
Table 10	Mean Use of Instructional Strategies by Content and Skill Areas (general level course)			X
Table 11	Mean Use of Instructional Strategies by Content and Skill Areas (advanced level course)			X
Table 12	Teacher Use of Evaluation Techniques		X	X
Table 13	Mean Use of Evaluation Techniques by Content and Skill Areas (general level course)			X

Figure 1 (Cont'd)
List of Tables, Graphs, and Charts

	Title	Level Available		
		School	Board	All Boards
Table 14	Mean Use of Evaluation Techniques by Content and Skill Areas (advanced level course)			X
Table 15	Hours of Instruction by Content and Skill Areas		X	X
Table 16	Item Analysis (general level course)	X	X	X
Table 17	Item Analysis (advanced level course)	X	X	X
Table 18	Item Data (general level course)			X
Table 19	Item Data (advanced level course)			X
Table 20	Interpretation Panel Ratings of Student Achievement by Content and Skill Areas			X
Table 21	Student Attitudes to Geography Program	X	X	X

APPENDIX 16

STANDARD ERRORS BY

CONTENT AND SKILL AREAS

(Figure 2)

APPENDIX 17

STANDARD ERRORS FOR

INDIVIDUAL QUESTIONS

(Figure 3)

Figure 2
Standard Errors by Content and Skill Areas

Population Size	Content and Skill Areas									
	A	B	C	D	E	F	G	H	I	J
10	14.9	14.9	6.7	9.0	7.7	9.2	14.9	5.2	6.9	14.9
15	12.0	12.0	5.4	7.3	6.2	7.4	12.0	4.2	5.5	12.0
20	10.3	10.3	4.6	6.2	5.3	6.3	10.3	3.6	4.8	10.3
30	8.3	8.3	3.8	5.0	4.3	5.1	8.3	2.9	3.9	8.3
50	6.4	6.4	2.9	3.9	3.3	3.9	6.4	2.2	3.0	6.4
100	4.5	4.5	2.0	2.7	2.3	2.8	4.5	1.6	2.1	4.5
150	3.7	3.7	1.7	2.2	1.9	2.3	3.7	1.3	1.7	3.7
200	3.2	3.2	1.4	1.9	1.6	2.0	3.2	1.1	1.5	3.2
300	2.6	2.6	1.2	1.6	1.3	1.6	2.6	0.9	1.2	2.6
500	2.0	2.0	0.9	1.2	1.0	1.2	2.0	0.7	0.9	2.0
1000	1.4	1.4	0.6	0.9	0.7	0.9	1.4	0.5	0.7	1.4
1500	1.2	1.2	0.5	0.7	0.6	0.7	1.2	0.4	0.5	1.2
2000	1.0	1.0	0.5	0.6	0.5	0.6	1.0	0.4	0.5	1.0
3000	0.8	0.8	0.4	0.5	0.4	0.5	0.8	0.3	0.4	0.8
5000	0.6	0.6	0.3	0.4	0.3	0.4	0.6	0.2	0.3	0.6

Note: The population size refers to the total number of students in an assessed group, such as a school or school board. For each content and skill area the standard error indicates the accuracy of the average score as estimated from the matrix-sampled assessment, in which each student took 1/5th of the questions. We can expect (68% confidence) that the score obtained for each school or board is within plus or minus the standard error of the score that would have been obtained if all students had taken all questions. Areas A, B, G, and J had just one question per assessment form, so the standard errors are higher than for other areas; also they depend somewhat on the achievement levels of the students: the tabulated standard errors are conservative. The 95% confidence interval would be plus or minus two standard errors.

Figure 3
Standard Errors for Individual Questions

Population Size	Percent Correct								
	10%	20%	30%	40%	50%	60%	70%	80%	90%
10	19.0	25.3	29.0	31.0	31.6	31.0	29.0	25.3	19.0
15	15.5	20.7	23.7	25.3	25.8	25.3	23.7	20.7	15.5
20	13.4	17.9	20.5	21.9	22.4	21.9	20.5	17.9	13.4
30	11.0	14.6	16.7	17.9	18.3	17.9	16.7	14.6	11.0
50	8.5	11.3	13.0	13.9	14.1	13.9	13.0	11.3	8.5
100	6.0	8.0	9.2	9.8	10.0	9.8	9.2	8.0	6.0
150	4.9	6.5	7.5	8.0	8.2	8.0	7.5	6.5	4.9
200	4.2	5.7	6.5	6.9	7.1	6.9	6.5	5.7	4.2
300	3.5	4.6	5.3	5.7	5.8	5.7	5.3	4.6	3.5
500	2.7	3.6	4.1	4.4	4.5	4.4	4.1	3.6	2.7
1000	1.9	2.5	2.9	3.1	3.2	3.1	2.9	2.5	1.9
1500	1.5	2.1	2.4	2.5	2.6	2.5	2.4	2.1	1.5
2000	1.3	1.8	2.0	2.2	2.2	2.2	2.0	1.8	1.3
3000	1.1	1.5	1.7	1.8	1.8	1.8	1.7	1.5	1.1
5000	0.8	1.1	1.3	1.4	1.4	1.4	1.3	1.1	0.8

Note: The population size refers to the total number of students in an assessed group, such as a school or school board. For a question of a given difficulty (percent correct) the standard error indicates the accuracy of the school or board score, which was based on the 1/5th sample of students taking the form containing the question. We can expect (68% confidence) that the score obtained by a school or board is within plus or minus one standard error of the score that would have been obtained if all students had taken the question. The 95% confidence interval would be plus or minus two standard errors.

APPENDIX 18

A GUIDE

FOR

INTERPETING

BOARD RESULTS

A GUIDE FOR INTERPRETING BOARD RESULTS

This document is used with the **Board Results** for the Canadian Studies Geography Review. The review was conducted in 1987 by the Learning Assessment Unit of the Program Implementation and Review Branch, Ministry of Education. This guide will assist with the interpretation of the data gathered by the teacher questionnaires and the student assessment booklets at the board level.

Following the suggestions contained in the guide, school boards will be able to identify areas of strength and weakness in the Canadian Studies Geography program. Analyzing the assessment data will help in the formulation of recommendations for improvement or for the affirmation of present practices. When considered in relation to the new guidelines, these recommendations should play a major role in the development of board level documents, courses of study, and implementation plans at the school and board levels.

Interpretations....not numbers

As with most measures, educational measurements are not particularly meaningful in their raw form. Indicators of performance - whether numerical or graphical - only take on meaning when interpreted against some kind of standard or expectation, or when correlated with some element of the program that can be changed.

Professional judgements....not mathematical comparisons

Even when interpretations occur, comparisons of performance levels alone still tend to oversimplify complex issues and can be misleading. Professional judgments must be brought to bear in identifying strengths and weaknesses.

For example, although the questions in the student assessment section of the review were directly related to the objectives in the Ministry guideline in effect in 1987 (Intermediate Geography, 1977), no priority was provided in these guidelines regarding the objectives; consequently, boards (and schools and teachers) spent varying amounts of time on the objectives. This is borne out in the graphs and tables illustrating opportunity-to-learn (Graphs 1 - 3 and Tables 4 and 5) and the table dealing with hours of instruction (Table 15). The fact that student performance in a board on specific questions or certain concept and skill areas is substantially lower than the performance by all participating boards may not necessarily mean that the results represent areas of weakness in the board program. The geography related to specific questions, or even to a content or skill area, may not have had a high priority in the board's program or the course of study in the school. Similarly, surpassing the performance level of all participating boards is not necessarily an indication of strength in a program if the emphasis on this area was particularly high in terms of numbers of hours. Many factors have to be considered when making these comparisons with the information in the report for all participating boards, or when examining the board results by themselves.

Standards - "How much is Satisfactory?"

The establishment of standards of achievement for the program within a board will assist in the understanding of the data. These standards **must** be based on the composition of the student population, emphases on particular parts of the Canadian Studies Geography program at the board level, current classroom practices and resources, and the local needs and expectations with regard to public education. A "standard" is an answer to the question, "How much is satisfactory?" or, more specifically, "What percent of students in this board should be able to correctly answer these questions in the Canadian Studies Geography course?"

It is extremely important to understand that all methods of setting standards depend on individual and group subjective judgement. No sound method exists to set standards for a program of study such as the Canadian Studies Geography program by simply plugging numbers into a formula. The setting of standards for a board's assessment results is as much educational as it is psychometric. Even if highly sophisticated statistical procedures are available and are performed flawlessly, the process of setting standards will be deficient unless the issues are discussed thoroughly and the process is undertaken in a thoughtful fashion by a representative group of informed professionals - geography teachers, department heads and support personnel from the board or Ministry of Education. It is this discussion that marks the beginning of program changes resulting from the assessment.

A Process for Analysis

School boards are encouraged to establish interpretation panels to set board standards. This Board Interpretation Panel, composed of geography teachers, department heads, consultants and other appropriate staff should use the Board Results as the basis for their analysis.

The Interpretation Panel process can also be established at the school level using school results. However, *school results should not be used to compare individual schools, but should only be used for program planning at the school level.*

One method by which a Board Interpretation Panel can operate is presented below.

Board Interpretation Panel

1. A Board Interpretation Panel is formed among appropriate staff.

Briefing - Awareness of the Results

2. The panel is briefed on the Board Results, particularly the statistical nature of the graphs and tables. The briefing can be carried out by the board contact, a staff member with knowledge of statistical methods, a research officer, or an Education Officer from the Regional Office of the Ministry of Education.

Scope of the Analysis

3. The panel decides on the scope of the analysis. Some alternatives include:

- identifying apparent areas of strength and weakness and concentrating only on these content and skill areas (use Graphs 8 and 9 illustrating student achievement);

- extending the analysis from apparent areas of strength and weakness to all of the content and skill areas;

- analyzing all of the student achievement data for students at either the general or advanced levels (see Table 16 for general level question data and Table 17 for advanced level question data);

- analyzing all of the student achievement data for both levels of difficulty.

Rating Board Results

4. Individually, members of the panel rate the student achievement for the questions selected for analysis using the board results. A five point scale is used:

5 = Superior
4 = Strong
3 = Satisfactory
2 = Marginal
1 = Weak

Form one is used for this phase of the analysis. Working independently, each panel member places the board p-value for the question in the first column. (This information is found in Tables 16 and 17). In the second column, each member places an individual rating of student achievement for the question, based on professional judgement (see scale above). Comments may be added for discussion with other panel members.

The rating is based on the professional judgement of the individual panel member. The rating of student achievement is done in association with other data including opportunity-to-learn, background of the students, hours of instruction in that content or skill area, and emphasis in the board curriculum or school course of study.

Discussion and Decisions

5. The Board Interpretation Panel meets to arrive at a group decision on the standard of student achievement for each question. Form two is used to record the panel consensus rating of student achievement for each question.

Consensus

6. Form three is used to summarize the panel's rating of student achievement for each question in a content and skill area and then to arrive at a consensus rating of student achievement for the content and skill area.

Comparisons with Provincial Results

7. When the report for all participating boards is available, the members of the panel can, individually, or as a group, add to form two, the p-value for all the participating boards and the rating of student achievement for each question that was assigned by the Provincial Interpretation Panel.

Although the emphasis should be placed on an analysis of board results in relation to local expectations, some value can be placed on a comparison of the board results with those of all participating boards. A Board Interpretation Panel might wish to compare board ratings and findings (see form three) with the report for all participating boards. Differences between local and provincial results provide the basis for further investigation using other information available such as opportunity-to-learn, instructional time, resources available and student background. The report for all participating boaqrds provides correlations of data that will stimulate discussion during this stage of the interpretation process.

Selecting Panelists

An interpretation panel at the local level can be established in a number of ways. Individuals chosen should be familiar with the Canadian Studies Geography program. In addition, members may be chosen who have experience in the grades seven and eight geography program to provide liaison with the beginning years of the Intermediate Division.

Classroom teachers, department heads, consultants and co-ordinators are obvious candidates for interpretation panels. However, the value of including informed and interested members of the public and/or trustees should not be overlooked. The Provincial Interpretation Panel for all participating boards included representation from many levels of education including teachers, department heads, administrators, trustees, supervisory officers and representation from the Faculties of Education.

The Provincial Interpretation Panel consisted of eighteen members. A panel at the board level might consist of between five and eight persons. Since there will be additional provincial reviews in other subjects - Physics and Chemistry in 1988 for example - some consideration might be given to including an individual who could learn the process during the geography review but who has subject expertise in one of the future areas to be reviewed. This will allow for some consistency in the process

.GLOSSARY OF TERMS

CONTENT AND SKILL AREA - In the Canadian Studies Geography Review, the questions were grouped into ten content and skill areas which were based on objectives in the Intermediate Geography Guideline (1977).

The seven content areas were:

A - Local Community
B - Extent and Location of Canada
C - Canada's Physical Geography
D - Canada's Renewable and Non-Renewable Resources
E - Distribution of Population in Canada
F - Effects of Industrialization and Techno logical Change on Transportation and Canadian Society
G - Energy Supply in Canada

The three skill areas were:

H - Topographic Maps and Air Photographs
I - Constructing and Interpreting Charts, Graphs and Thematic Maps
J - Using Statistics in Geography

INTERPRETATION PANEL - a representative group of educators (and others including trustees and/or parents or parents' groups) which evaluates the levels of performance for either a board or for the province. The panel also identifies areas of strength and weakness in the current program indicated by the assessment results and formulates recommendations for specific action to maintain areas of strength and improve areas of weakness.

MEAN PERCENT CORRECT - the average percent of correct responses to a group of questions constituting a content or skill area. A mean percent correct of 63 for a content or skill area indicates that 63% of all the questions in the content or skill area were answered correctly by the students who attempted them.

P-VALUE - the percent of correct responses to a question. A p-value of 63 for a question indicates that 63% of the students who attempted the question answered it correctly.

STANDARD - levels of performance which are subjectively established by considering student achievement in relation to the nature of the student population, the kinds of questions answered by students, the educational program and its emphases and the educational needs and aspirations of the community. A "standard" is an answer to the question "How much is satisfactory?" or, more specifically, "What percentage of students in this board should be able to correctly answer these questions in Canadian Studies Geography?"

BOARD INTERPRETATION PANEL

FORM ONE

RATING OF STUDENT ACHIEVEMENT ON INDIVIDUAL QUESTIONS BY EACH PANELIST

COURSE LEVEL: General ☐ Advanced ☐

C/S Area and Item		Board p-value	Individual Rating	Comments
A	1			
	27			
	53			
	79			
	105			
B	2			
	28			

BOARD INTERPRETATION PANEL

FORM TWO

RATING OF STUDENT ACHIEVEMENT ON INDIVIDUAL QUESTIONS BY WHOLE PANEL

COURSE LEVEL: General ☐ Advanced ☐

C/S and Area	Item	Board p-value	Board Rating	Provincial p-value	Provincial rating	School p-value	School rating
A	1						
	27						
	53						
	79						
	105						
B	2						
	28						

BOARD INTERPRETATION PANEL

FORM THREE

RATING OF STUDENT ACHIEVEMENT ON EACH CONTENT AND SKILL AREA BY WHOLE PANEL

COURSE LEVEL: General ☐ Advanced ☐

NAME OF CONTENT OR SKILL AREA _____

A. Question Rating Summary

Total number of questions in Content and Skill Area _____

Number of questions where achievement is rated:

Superior	(5)	_____
Strong	(4)	_____
Satisfactory	(3)	_____
Marginal	(2)	_____
Weak	(1)	_____

B. Consensus Rating ☐

C. Anecdotal Comments (Strengths and Weaknesses)

_____

_____

_____

D. Possible Recommendations for Change

_____

_____